

APPENDIX 7C

FOOD CHAIN MODELING

APPENDIX 7C.1

EXPOSURE FACTORS - MAXIMUM MODELS

TABLE 1
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Muskrat - Max

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	AR, BE-1, BE-2, BE-3, HB01, HB02-1, HB03-1, HB03-2, MC-09, MC-13, Ref	C	Chemical Concentration ¹	see Appendix 7C.2	mg/kg or ug/L	see Appendix 7C.2	Dose _{food} (mg/kg BW-day) = ((FIW x Pe _{animal} x C _{animal}) + (FIW x Pe _{plant} x C _{plant})) x ASUF x TSUF
		BW	Body Weight	0.827	kg	a	
		FIW	Food Intake Rate, wet	0.533	kg food _{wet} / kg BW _{wet} * day	b	
		FID	Food Intake Rate, dry	0.071	kg food _{dry} / kg BW _{wet} * day	c	
		Pe _{animal}	Animal Food Source Dietary Percentage	0.056	fraction on a wet weight basis, 10% on a dry weight basis	d	
		Pe _{plant}	Plant Food Source Dietary Percentage	0.944	fraction on a wet weight basis, 90% on a dry weight basis	d	Dose _{soil/sed} (mg/kg BW-day) = SI _{soil/sed} x FID x C _{soil/sed} x ASUF x TSUF x SBAF
		WC _{animal}	water content (% moisture), animal tissue	0.767		e	
		WC _{plant}	water content (% moisture), plant tissue	0.87		f	
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.033	fraction on a dry weight basis (kg sed _{dry} / kg food _{dry})	g	
		SI _{water}	Surface Water Ingested	0.101	L _{water} / kg BW _{wet} * day	h	
		ASUF	Areal Site Use Factor	1	--	i	Dose _{water} (mg/kg BW-day) = SI _{water} x C _{water} x CF x ASUF x TSUF
		TSUF	Temporal Site Use Factor	1	--	j	
		SBAF	Soil/Sed Bioavailability Factor	1	--	k	
		CF	Conversion Factor	0.001	mg/ug	--	

Notes:

a Based on adult female. Source: Reeves and Williams (1956) cited in USEPA (1993d)

b Based on Equation: FIW = [Pe_{animal} * FID/(1-WC_{animal})] +[Pe_{plant} * FID/(1-WC_{plant})]. Source: Sample et al. (1997)

c Based on equation: FID = (0.0687 (BW)^{0.822})/BW for mammals. Source: Nagy (1987) cited in Sample et al. (1997)

d Based on diet composition of 90% plant and 10% animal (dry weight) converted to wet weight basis. Ten percent animal tissue was selected as a conservative value for the Aberjona River study area. Site specific crayfish tissue data were used to represent COPC concentrations in the animal portion of the diet. Sources: Martin, et al. (1951) and USEPA (1993d)

Pe_{animal} = (fraction animal tissue dry/(1-fraction water content animal tissue)) / ((fraction animal tissue dry/(1-fraction water content animal tissue)) + (fraction plant tissue dry/(1-fraction water content plant tissue)))

Pe_{plant} = (fraction plant tissue dry/(1-fraction water content plant tissue)) / ((fraction animal tissue dry/(1-fraction water content animal tissue)) + (fraction plant tissue dry/(1-fraction water content plant tissue)))

e Average % moisture measured in invertebrate tissue samples at Wells G&H Superfund Site (USEPA, 2004)

f Average % moisture measured in plant tissue samples at Wells G&H Superfund Site (USEPA, 2004)

g A conservative value for incidental sediment ingestion equivalent of 3.3% of diet (dry weight). Value used for mallard. Source: Beyer et al. (1994)

h Based on equation: SI_{water} = (0.099 (BW)^{0.9})/BW for mammals. Source: Calder and Braun (1983) cited in Sample et al. (1997)

I Based on home range smaller than the exposure area. Source: USEPA (1993d)

j Assumes no migration, population present year-round

k Assumes 100% bioavailability of COPC

¹ Plant uptake factors developed for Wells G&H OU3 were utilized for generating plant tissue concentrations if analyses were unavailable. Analytes included:

Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-Chlordane, Aroclor-1260, Endosulfan I, Endrin aldehyde, and gamma-Chlordane.

TABLE 2
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Otter - Max

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	Sitewide, Reference	C	Chemical Concentration	see Appendix 7C.2	mg/kg or ug/L	see Appendix 7C.2	Dose _{food} (mg/kg BW-day) = $((FIW \times Pe_{animal} \times C_{animal}) + (FIW \times Pe_{invent} \times C_{invent})) \times ASUF \times TSUF$
		BW	Body weight	7.9	kg	a	
		FIW	Food Intake Rate, wet	0.1	kg food _{wet} / kg BW _{wet} * day	b	
		FID	Food Intake Rate, dry	0.025	kg food _{dry} / kg BW _{wet} * day	c	
		Pe _{animal}	Fish Food Source Dietary Percentage	0.8	fraction on a wet weight basis	d,e	
		Pe _{invent}	Invertebrate Food Source Dietary Percentage	0.2	fraction on a wet weight basis	d,e	
		WC _{animal}	Water content (% moisture), fish tissue	0.753		f	
		WC _{invent}	Water content (% moisture), invertebrate tissue	0.767		g	
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.02	fraction on a dry weight basis (kg sed _{dry} / kg food _{dry})	h	
		SI _{water}	Surface Water Ingested	0.08	L _{water} / kg BW _{wet} * day	i	
		ASUF	Areal Site Use Factor	1	--	j	
		TSUF	Temporal Site Use Factor	1	--	k	Dose _{water} (mg/kg BW-day) = SI _{water} x CF x ASUF x TSUF
		SBAF	Soil/Sed Bioavailability Factor	1	--	l	
		CF	Conversion Factor	0.001	mg/ug	--	

Notes:

a Based on adult female. Source: Melquist and Hornocker (1983) cited in USEPA (1993d)

b Source: Harris (1968) cited in USEPA (1993d)

c Wet food intake rate converted to dry food intake rate using the following formula: FID = [FIW * Pe_{animal} * (1-WC_{animal})] + [FIW * Pe_{invent} * (1-WC_{invent})]. Source: Sample et al. (1997)

d Based on diet composition of 80% fish and 20% invertebrate. The diet of the river otter consists primarily of fish, although they may consume aquatic invertebrates and crustaceans. Small mammals, amphibians, insects, birds, and reptiles may also be consumed, as available. USEPA (2003b) documented crayfish as 20% of river otter diet in the Housatonic River. Sources: USEPA (1993d); USEPA (2003b)

e Invertebrate Food Source Dietary Percentage for SVOCs assumed to be 1 since fish were not analyzed for SVOCs

f Average % moisture measured in fish tissue samples at Wells G&H Superfund Site (USEPA, 2004)

g Average % moisture measured in invertebrate tissue samples at Wells G&H Superfund Site (USEPA, 2004)

h A conservative value for incidental sediment ingestion equivalent of 2% of diet (dry weight). Value used is the lower end of range as observed for other species in Beyer et al. (1994) with similar diet

i Source: Sample and Suter (1999)

j Based on home range smaller than the exposure area. Source: USEPA (1993d)

k Assumes no migration, population present year-round

l Assumes 100% bioavailability of COPC

TABLE 3
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Heron - Max

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	Sitewide, Reference	C	Chemical Concentration	see Appendix 7C.2	mg/kg or ug/L	see Appendix 7C.2	Dose _{food} (mg/kg BW-day) = $((FIW \times Pe_{animal} \times C_{animal}) + (FIW \times Pe_{invert} \times C_{invert})) \times ASUF \times TSUF$
		BW	Body Weight	0.212	kg	a	
		FIW	Food Intake Rate, wet	0.19	kg food _{wet} / kg BW _{wet} * day	b	
		FID	Food Intake Rate, dry	0.0454	kg food _{dry} / kg BW _{wet} * day	c	
		Pe _{animal}	Fish Food Source Dietary Percentage	0.45	fraction on a wet weight basis	d,e	
		Pe _{invert}	Invertebrate Food Source Dietary Percentage	0.55	fraction on a wet weight basis	d,e	
		WC _{animal}	Water content (% moisture), animal tissue	0.753		f	
		WC _{invert}	Water content (% moisture), invertebrate tissue	0.767		g	
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.01	fraction on a dry weight basis (kg sed _{dry} / kg food _{dry})	h	
		SI _{water}	Surface Water Ingested	0.098	L _{water} / kg BW _{wet} * day	i	
		ASUF	Areal Site Use Factor	1	--	j	
		TSUF	Temporal Site Use Factor	1	--	k	
		SBAF	Soil/Sed Bioavailability Factor	1	--	l	
		CF	Conversion Factor	0.001	mg/ug	--	Dose _{water} (mg/kg BW-day) = $SI_{water} \times C_{water} \times CF \times ASUF \times TSUF$

a Based on adult. Source: Nelson and Martin (1953) cited in USEPA (1993d)

b Source: Kushlan (1978) cited in Sample *et al.* (1997)

c Based on equation: FID = FIW * (1-WC_{animal})*(1-WC_{invert})/((Pe_{animal}*(1-WC_{animal})) + (Pe_{invert}*(1-WC_{animal}))). Source: Nagy (1987) cited in Sample *et al.* (1997)

d Based on diet composition of 45% fish and 55% animal on a wet weight basis. Source: Meyerrecks (1962) cited in Sample *et al.* (1997)

e Invertebrate Food Source Dietary Percentage for SVOCs assumed to be 1 since fish were not analyzed for SVOCs

f Average % moisture measured in fish tissue samples at Wells G&H Superfund Site (USEPA, 2004)

g Average % moisture measured in invertebrate tissue samples at Wells G&H Superfund Site (USEPA, 2004)

h A conservative value for incidental sediment ingestion equivalent of 1% of diet (dry weight). Source: Sample *et al.* (1997)

i Based on equation: SI_{water} = (0.059 (BW)^{0.67})/BW for birds. Source: Calder and Braun (1983) cited in Sample *et al.* (1997)

j Based on home range smaller than the exposure area. Source: USEPA (1993d)

k Assumes no migration, population present year round

l Assumes 100% bioavailability of COPC

TABLE 4
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Mallard - Max

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	HBHA wetland, HBHA pond, Sitewide, Reference	C	Chemical Concentration ¹	see Appendix 7C.2	mg/kg or ug/L	see Appendix 7C.2	$Dose_{food} \text{ (mg/kg BW-day)} = ((FIW \times Pe_{animal} \times C_{animal}) + (FIW \times Pe_{plant} \times C_{plant})) \times ASUF \times TSUF$ $Dose_{soil/sed} \text{ (mg/kg BW-day)} = SI_{soil/sed} \times FID \times C_{soil/sed} \times ASUF \times TSUF \times SBAF$ $Dose_{water} \text{ (mg/kg BW-day)} = SI_{water} \times C_{water} \times CF \times ASUF \times TSUF$
		BW	Body weight	1.043	kg		a
		FIW	Food Intake Rate, wet	0.312	kg food _{wet} / kg BW _{wet} * day		b
		FID	Food Intake Rate, dry	0.057	kg food _{dry} / kg BW _{wet} * day		c
		Pe _{animal}	Animal Food Source Dietary Percentage	0.522	fraction on a wet weight basis, 67% on a dry weight basis		d
		Pe _{plant}	Plant Food Source Dietary Percentage	0.478	fraction on a wet weight basis, 33% on a dry weight basis		d
		WC _{animal}	Water content (% moisture), animal tissue	0.767			e
		WC _{plant}	Water content (% moisture), plant tissue	0.87			f
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.033	fraction on a dry weight basis (kg sed _{dry} / kg food _{dry})		g
		SI _{water}	Surface Water Ingested	0.058	L _{water} / kg BW _{wet} * day		h
		ASUF	Areal Site Use Factor	1	--		i
		TSUF	Temporal Site Use Factor	1	--		j
		SBAF	Soil/Sed Bioavailability Factor	1	--		k
		CF	Conversion Factor	0.001	mg/ug		--

Notes:

a Based on adult female. Source: Nelson and Martin (1953) cited in USEPA (1993d)

b Based on Equation: FIW = Pe_{animal} * FID/(1-WC_{animal}) + Pe_{plant} * FID/(1-WC_{plant}). Source: Nagy (1987) cited in Sample et al. (1997)

c Based on equation: FID = (0.0582 (BW)^{0.651})/BW for birds. Source: Nagy (1987) cited in Sample et al. (1997)

d Based on diet composition of 33% plant and 67% animal (dry weight) converted to wet weight basis. Source: Swanson et al. (1985) cited in USEPA (1993d)

Pe_{animal} = (fraction animal tissue dry/(1-fraction water content animal tissue)) / ((fraction animal tissue dry/(1-fraction water content animal tissue)) + (fraction plant tissue dry/(1-fraction water content plant tissue)))

Pe_{plant} = (fraction plant tissue dry/(1-fraction water content plant tissue)) / ((fraction animal tissue dry/(1-fraction water content animal tissue)) + (fraction plant tissue dry/(1-fraction water content plant tissue)))

e Average % moisture measured in invertebrate tissue samples at Wells G&H Superfund Site (USEPA, 2004)

f Average % moisture measured in plant tissue samples at Wells G&H Superfund Site (USEPA, 2004)

g A conservative value for incidental sediment ingestion equivalent of 3.3% of diet (dry weight). Source: Beyer et al. (1994)

h Based on equation: SI_{water} = (0.059 (BW)^{0.67})/BW for birds. Source: Calder and Braun (1983) cited in Sample et al. (1997)

I Based on home range smaller than the exposure area. Source: USEPA (1993d)

j Assumes no migration, population present year round

k Assumes 100% bioavailability of COPC

¹ Plant uptake factors developed for Wells G&H OU3 were utilized for generating plant tissue concentrations if analyses were unavailable. Analytes included:

Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, Pyrene, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, alpha-Chlordane, Aroclor-1260, Endosulfan I, Endrin aldehyde, and gamma-Chlordane.

TABLE 5
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Shrew - Max

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	A6, BE-1, BE-2, BE-4, HB02-2, HB03-3, HB04, Ref	C	Chemical Concentration	see Appendix 7C.2	mg/kg or ug/L	see Appendix 7C.2	Dose _{food} (mg/kg BW-day) = $((FIW \times Pe_{animal} \times C_{animal}) \times ASUF \times TSUF)$
		BW	Body Weight	0.015	kg	a	
		FIW	Food Intake Rate, wet	0.6	kg food _{wet} / kg BW _{wet} * day	b	
		FID	Food Intake Rate, dry	0.095	kg food _{dry} / kg BW _{wet} * day	c	
		Pe _{animal}	Animal Food Source Dietary Percentage	0.87	fraction on a wet weight basis	d	
		WC _{animal}	Water content (% moisture), animal tissue	0.84		e	
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.13	fraction on a dry weight basis (kg sed _{dry} / kg food _{dry})	f	Dose _{soil/sed} (mg/kg BW-day) = $SI_{soil/sed} \times FID \times C_{soil/sed} \times ASUF \times TSUF \times SBAF$
		SI _{water}	Surface Water Ingested	0.22	L _{water} / kg BW _{wet} * day	g	
		ASUF	Areal Site Use Factor	1	--	h	Dose _{water} (mg/kg BW-day) = $SI_{water} \times C_{water} \times CF \times ASUF \times TSUF$
		TSUF	Temporal Site Use Factor	1	--	i	
		SBAF	Soil/Sed Bioavailability Factor	1	--	j	
		CF	Conversion Factor	0.001	mg/ug	--	

a Based on adult. Source: Schlessinger and Potter (1974) cited in Sample and Suter (1994)

b Source: Barrett & Stuek (1976) cited in USEPA (1993d)

c Wet food intake rate converted to dry food intake rate using the following formula: FID = FIW * (1-WC_{animal}). Source: Sample (1997)

d Based on diet composition which assumes that 13% of diet is sediment ingestion and the balance is earthworms (87% wet weight). Sources: Whitaker and Ferraro (1963), Talmage and Walton (1993) respectively cited in Sample and Suter (1994)

e Average % moisture measured in earthworm tissue. Source: Sample and Suter (1994)

f A conservative value for incidental sediment ingestion equivalent of 13% of diet (dry weight). Source: Talmage and Walton (1993) cited in Sample and Suter (1994)

g Based on Chew (1951) cited in Sample and Suter (1994)

h Based on home range smaller than the exposure area. Source: USEPA (1993d)

i Assumes no migration, population present year-round

j Assumes 100% bioavailability of COPC

APPENDIX 7C.2

EXPOSURE POINT CONCENTRATIONS - MAXIMUMS

TABLE 1. SUMMARY INFORMATION - SEDIMENT AND SOIL STATION MAXIMUMS

Receptor:	Muskrat												Mallard				Heron		Otter				Shrew				
Parameter	AR	BE-1	BE-2	BE-3	HB01	HB02-1	HB03-1	HB03-2	MC-09	MC-13	Ref	HBHA wetland	HBHA pond	Sitewide	Ref	Sitewide	Ref	Sitewide	Ref	A6	BE-1	BE-2	BE-4	HB02-2	HB03-3	HB04	Ref Wetland
VOCs (mg/Kg)																											
1,1-Dichloroethane	NA	NA	NA	NA	0.027	0.0095	0.0050	0.0070	0.012	0.0030	0.035	0.012	0.027	0.035	0.027	0.035	0.045	0.018	NA	NA	NA	NA	NA	NA	NA	0.035	
2-Butanone	NA	NA	NA	NA	0.0030	0.34	0.0050	0.0070	0.012	0.089	0.68	0.34	0.0030	0.34	0.68	0.34	0.52	0.68	NA	NA	NA	NA	NA	NA	NA	0.015	
Acetone	NA	NA	NA	NA	0.031	1.4	0.058	0.23	0.47	0.29	2.2	1.4	0.031	1.4	2.2	1.4	2.3	2.2	NA	NA	NA	NA	NA	NA	NA	0.090	
Benzene	NA	NA	NA	NA	0.0030	0.0090	0.0050	0.0070	0.041	0.0030	0.0040	0.041	0.0030	0.041	0.0040	0.041	0.040	0.0040	NA	NA	NA	NA	NA	NA	NA	0.015	
Carbon Disulfide	NA	NA	NA	NA	0.017	0.013	0.0050	0.0070	0.012	0.0030	0.0030	0.013	0.017	0.017	0.0030	0.017	0.060	0.0030	NA	NA	NA	NA	NA	NA	NA	NA	
Vinyl Chloride	NA	NA	NA	NA	0.0030	0.0095	0.0050	0.0070	0.012	0.0030	0.035	0.012	0.0030	0.012	0.035	0.012	0.018	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Xylene, m/p-	NA	NA	NA	NA	0.0065	0.019	0.0095	0.014	0.024	0.0060	0.025	0.024	0.0065	0.024	0.025	0.024	0.24	0.025	NA	NA	NA	NA	NA	NA	NA	NA	
Xylene, o-	NA	NA	NA	NA	0.0030	0.0095	0.0050	0.0070	0.012	0.0030	0.015	0.012	0.0030	0.012	0.015	0.012	0.015	0.30	NA	NA	NA	NA	NA	NA	NA	0.015	
SVOCs (mg/Kg)																											
2-Methylphenol	NA	NA	NA	NA	0.15	0.17	0.17	0.17	0.32	0.17	1.6	0.32	0.15	0.32	1.6	0.32	1.6	0.38	1.6	NA	NA	NA	NA	NA	NA	NA	1.1
Acenaphthene	NA	NA	NA	NA	0.15	0.13	0.17	0.24	0.32	0.10	1.4	0.24	0.15	0.24	1.4	0.24	1.4	0.80	0.29	NA	NA	NA	NA	NA	NA	NA	1.4
Acenaphthylene	NA	NA	NA	NA	0.080	0.17	0.17	0.098	0.32	0.11	0.80	0.098	0.080	0.11	0.80	0.11	0.80	0.11	0.39	NA	NA	NA	NA	NA	NA	NA	0.80
Anthracene	NA	NA	NA	NA	0.26	0.22	0.17	0.59	0.32	0.33	1.9	0.59	0.26	0.59	1.9	0.59	1.9	0.99	NA	NA	NA	NA	NA	NA	NA	1.9	
Benzo(a)anthracene	NA	NA	NA	NA	1.3	1.1	0.46	4.0	0.75	1.7	5.9	4.0	1.3	4.0	5.9	4.0	5.9	4.9	NA	NA	NA	NA	NA	NA	NA	5.9	
Benzo(a)pyrene	NA	NA	NA	NA	1.4	1.4	0.69	7.2	1.1	2.6	5.5	7.2	1.4	7.2	5.5	7.2	5.5	NA	NA	NA	NA	NA	NA	NA	NA	5.5	
Benzo(b)fluoranthene	NA	NA	NA	NA	2.1	2.2	1.1	10	1.5	3.8	10	10	2.1	10	10	10	10	5.8	NA	NA	NA	NA	NA	NA	NA	10	
Benzo(g,h,i)perylene	NA	NA	NA	NA	0.76	0.94	0.48	3.7	0.72	1.5	2.2	3.7	0.76	3.7	2.2	3.7	4.1	2.2	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(k)fluoranthene	NA	NA	NA	NA	1.7	1.8	0.91	5.9	1.5	2.3	9.6	5.9	1.7	5.9	9.6	5.9	8.3	6.7	NA	NA	NA	NA	NA	NA	NA	9.6	
Benzoic acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	37	1	0.54	1.1	1.5	0.58	0.43	1.5	37	37	0.43	37	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Carbazole	NA	NA	NA	NA	0.16	0.40	0.17	0.97	0.32	0.32	0.99	0.97	0.16	0.97	0.99	0.97	2.1	0.52	NA	NA	NA	NA	NA	NA	NA	0.99	
Chrysene	NA	NA	NA	NA	1.8	2.2	0.96	9.9	1.5	3.0	7.3	9.9	1.8	9.9	7.3	10	5.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Dibenz(a,h)anthracene	NA	NA	NA	NA	0.21	0.22	0.11	1.2	0.18	0.53	1.1	1.2	0.21	1.2	1.1	1.2	1.1	NA	NA	NA	NA	NA	NA	NA	NA	0.50	
Fluoranthene	NA	NA	NA	NA	3.4	3.9	1.5	16	2.3	4.7	15	16	3.4	16	15	16	19	11	NA	NA	NA	NA	NA	NA	NA	15	
Fluorene	NA	NA	NA	NA	0.15	0.24	0.17	0.37	0.32	0.12	2.8	0.37	0.15	0.37	2.8	2.8	1.3	0.62	NA	NA	NA	NA	NA	NA	NA	2.8	
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	0.94	1.2	0.56	4.9	0.85	2.2	3.7	4.9	0.94	4.9	3.7	5.2	3.7	NA	NA	NA	NA	NA	NA	NA	NA	1.7	
Naphthalene	NA	NA	NA	NA	0.11	0.19	0.17	0.12	0.32	0.090	0.52	0.19	0.11	0.19	0.52	0.19	0.83	0.16	NA	NA	NA	NA	NA	NA	NA	0.52	
N-Nitrosodiphenylamine	NA	NA	NA	NA	0.15	0.17	0.10	0.17	0.32	0.17	1.6	0.17	0.15	1.6	0.17	1.6	0.17	1.6	NA	NA	NA	NA	NA	NA	NA	1.1	
Phenanthrene	NA	NA	NA	NA	1.0	2.0	0.53	7.0	0.76	2.0	12	7.0	1.0	7.0	12	7.0	12	10	4.5	NA	NA	NA	NA	NA	NA	NA	12
Phenol	NA	NA	NA	NA	0.15	0.17	0.17	0.32	0.17	0.17	1.6	0.1															

TABLE 2. SUMMARY INFORMATION - SURFACE WATER MAXIMUMS

Receptor:	Muskrat											Mallard				Heron			Otter			Shrew					Ref Wetland
	AR	BE-1	BE-2	BE-3	HB01	HB02-1	HB03-1	HB03-2	MC-09	MC-13	Ref	HBHA wetland	HBHA pond	Sitewide	Ref	Sitewide	Ref	Sitewide	Ref	BE-1	BE-2	BE-4	HB02-2	HB03-3	HB04		
VOCs (ug/L)																											
1,1-Dichloroethane	NA	NA	NA	NA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	NA	NA	NA	1	1	1	0.5	
2-Butanone	NA	NA	NA	NA	1	1	1	1	1	2.5	1	1	1	2.5	1	1	2.5	1	2.5	NA	NA	NA	1	1	1	2.5	
Acetone	NA	NA	NA	NA	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	NA	NA	NA	2.5	2.5	2.5	2.5	
Benzene	NA	NA	NA	NA	1	1	1	1	1	1	1	1	1	1	1	1	1	190	1	NA	NA	NA	1	1	1	0.5	
Carbon Disulfide	NA	NA	NA	NA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	NA	NA	NA	1	1	1	0.5	
Vinyl Chloride	NA	NA	NA	NA	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	NA	NA	NA	1	1	1	0.5	
Xylene, m-p-	NA	NA	NA	NA	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	NA	NA	NA	2	2	2	NA	
Xylene, o-	NA	NA	NA	NA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	NA	NA	NA	1	1	1	NA	
SVOCs (ug/L)																											
2-Methylphenol	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
Acenaphthene	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
Acenaphthylene	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
Anthracene	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
Benzo(a)anthracene	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
Benzo(a)pyrene	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
Benzo(b)fluoranthene	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
Benzo(g,h,i)perylene	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
Benzo(k)fluoranthene	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
Benzoic acid	NA	NA	NA	NA	69	0.9	0.9	0.9	NA	NA	NA	0.9	69	69	NA	69	NA	69	NA	NA	NA	NA	0.9	0.9	0.9	NA	
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	6	120	120	120	2	2.5	2.5	120	6	120	2.5	120	2.5	120	3	NA	NA	NA	120	120	120	2.5	
Carbazole	NA	NA	NA	NA	2.5	2.5	2.5	2.5	2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	NA	NA	NA	2.5	2.5	2.5	NA	
Chrysene	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
Cyclohexanone	NA	NA	NA	NA	290	100	100	100	NA	NA	NA	100	290	290	NA	290	NA	290	NA	NA	NA	NA	100	100	100	NA	
Dibenz(a,h)anthracene	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
Fluoranthene	NA	NA	NA	NA	6	0.2	0.2	0.2	2	2.5	2.5	0.2	6	0.2	2.5	0.2	2.5	0.2	2.5	NA	NA	NA	0.2	0.2	0.2	2.5	
Fluorene	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
Naphthalene	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
N-Nitrosodiphenylamine	NA	NA	NA	NA	29.5	34.5	34.5	34.5	2	2.5	2.5	34.5	29.5	34.5	2.5	34.5	2.5	34.5	2.5	NA	NA	NA	34.5	34.5	34.5	2.5	
Phenanthrene	NA	NA	NA	NA	6	7	7	7	2	2.5	2.5	7	6	7	2.5	7	2.5	7	2.5	NA	NA	NA	7	7	7	2.5	
Phenol	NA	NA	NA	NA	7	6	6	6	2	2.5	2.5	6	7	7	2.5	7	2.5	7	2.5	NA	NA	NA	6	6	6	2.5	
Pyrene	NA	NA	NA	NA	6	0.2	0.2	0.2	2	2.5	2.5	0.2	6	0.2	2.5	0.2	2.5	0.2	2.5	NA	NA	NA	0.2	0.2	0.2	2.5	
Pesticides/PCBs (ug/L)																											
4,4'-DDD	NA	NA	NA	NA	0.0044	0.005	0.005	0.005	0.005	0.00445	0.05	0.005	0.0044	0.005	0.05	0.005	0.005	0.05	0.005	NA							

TABLE 3. SUMMARY INFORMATION - BENTHIC INVERTEBRATE TISSUE STATION MAXIMUMS

Parameter	Receptor:	Muskrat								Mallard				Heron		Otter	
		MC-06	MC-08	MC-09	MC-11	MC-13	HBHA wetland	Sitewide	Ref	HBHA wetland	HBHA pond	Sitewide	Ref	Sitewide	Ref	Sitewide	Ref
<u>VOCs (mg/Kg)</u>																	
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, m/p-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, o-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<u>SVOCs (mg/Kg)</u>																	
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0035	0.0015	0.0015	0.028	0.022	0.028	0.028	0.004	0.028	0.0030	0.028	0.004	0.028	0.004	0.028	0.0040	0.0040
Acenaphthylene	0.0035	0.0030	0.0015	0.0045	0.0030	0.0030	0.0030	0.002	0.0030	0.0035	0.003	0.002	0.003	0.002	0.0030	0.013	0.013
Anthracene	0.0090	0.0030	0.0030	0.023	0.013	0.023	0.023	0.004	0.023	0.0090	0.023	0.004	0.023	0.004	0.023	0.0080	0.0080
Benzo(a)anthracene	0.022	0.0070	0.0090	0.059	0.028	0.059	0.059	0.004	0.059	0.022	0.059	0.004	0.059	0.004	0.059	0.015	0.015
Benzo(a)pyrene	0.015	0.0070	0.0060	0.025	0.019	0.025	0.025	0.002	0.025	0.015	0.025	0.002	0.025	0.002	0.025	0.0080	0.0080
Benzo(b)fluoranthene	0.027	0.0070	0.0080	0.073	0.026	0.073	0.073	0.004	0.073	0.027	0.073	0.004	0.073	0.004	0.073	0.0080	0.0080
Benzo(g,h,i)perylene	0.014	0.0060	0.0050	0.034	0.017	0.034	0.034	0.003	0.034	0.014	0.034	0.003	0.034	0.003	0.034	0.0080	0.0080
Benzo(k)fluoranthene	0.0080	0.0040	0.0040	0.019	0.0070	0.019	0.019	0.004	0.019	0.0080	0.019	0.004	0.019	0.004	0.019	0.0070	0.0070
Benzoic acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.025	0.012	0.012	0.13	0.039	0.13	0.13	0.006	0.13	0.025	0.13	0.006	0.13	0.006	0.13	0.012	0.012
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0035	0.0015	0.0015	0.0045	0.0030	0.0045	0.0045	0.004	0.0045	0.0035	0.0045	0.004	0.0045	0.004	0.0045	0.0040	0.0040
Fluoranthene	0.065	0.022	0.044	0.45	0.090	0.45	0.45	0.013	0.45	0.065	0.45	0.013	0.45	0.013	0.45	0.028	0.028
Fluorene	0.0035	0.0015	0.0040	0.029	0.011	0.029	0.029	0.004	0.029	0.0030	0.029	0.004	0.029	0.004	0.029	0.0070	0.0070
Indeno(1,2,3-cd)pyrene	0.015	0.0060	0.0060	0.034	0.016	0.034	0.034	0.003	0.034	0.015	0.034	0.003	0.034	0.003	0.034	0.0080	0.0080
Naphthalene	0.0080	0.0040	0.0080	0.021	0.015	0.021	0.021	0.0135	0.021	0.0080	0.021	0.0135	0.021	0.0135	0.021	0.0135	0.021
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	0.021	0.0070	0.028	0.18	0.080	0.18	0.18	0.0115	0.18	0.021	0.18	0.0115	0.18	0.0115	0.18	0.023	0.023
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.048	0.017	0.035	0.31	0.084	0.31	0.31	0.01	0.31	0.048	0.31	0.01	0.31	0.01	0.31	0.021	0.021
<u>Pesticides/PCBs (mg/Kg)</u>																	
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
<u>Metals - Total (mg/Kg)</u>																	
Aluminum	300	21	18	32	200	32	300	130	32	300	300	130	300	130	300	130	130
Antimony	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Arsenic	26	5.8	8.3	4.3	9.8	8.3	26	0.93	8.3	26	26	0.93	26	0.93	26	0.93	0.93
Barium	11	5.0	5.0	5.0	5.0	5.0	11	5	5.0	11	11	5	11	5	11	5.0	5.0
Beryllium	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.5	0.50	0.50	0.5	0.5	0.5	0.5	0.5	0.50	0.50
Cadmium	0.57	0.25	0.25	0.25	0.25	0.25	0.57	0.25	0.25	0.57	0.57	0.25	0.57	0.25	0.57	0.25	0.25
Chromium	16	1.4	1.7	2.2	16	2.2	16	4.9	2.2	16	16	4.9	16	4.9	16	4.9	4.9
Cobalt	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5	5.0	5.0	5	5	5	5	5	5.0	5.0
Copper	22	5.0	20	5.0	18	20	26	5	20	26	22	5	22	5	26	16	16
Iron	3300	590	640	580	1400	640	3300	720	640	3300	3300	720	3300	720	3300	720	720
Lead	13	0.50	0.50	1.1	8.1	1.1	13	6.4	1.1	13	13	6.4	13	6.4	13	6.4	6.4
Manganese	47	24	14	5.0	25	24	47	60	24	47	47	60	47	60	47	60	67
Mercury	NA	0.050	0.050	NA	0.050	0.050	0.050	0.05	0.050	0.050	0.05	0.05	0.05	0.05	0.05	0.050	0.050
Nickel	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5	5.0	5.0	5	5	5	5	5	5.0	5.0
Selenium	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Silver	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25
Thallium	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1	1.0	1.0	1	1	1	1	1	1.0	1.0
Vanadium	1.0	0.25	0.25	0.25	0.97	0.25	1.0	0.79	0.25	1.0	1	0.79	1	0.79	1	0.79	0.79
Zinc	160	35	27	26	46	35	160	17	35	160	160	17	160	17	160	17	18
Chromium VI	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous (mg/Kg)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes

Total Organic Carbon (TOC) values are averages for the station.

Shading designates that there were no detections of the analyte at the station. The value presented is half of the maximum non-detect.

NA - Not Analyzed or Not Available

Ref - Reference

TABLE 4. SUMMARY INFORMATION - PLANT TISSUE STATION MAXIMUMS

Receptor:	Muskrat							Mallard			
	MC-06	MC-08	MC-09	MC-11	HBHA wetland	Sitewide	Ref	HBHA wetland	HBHA pond	Sitewide	Ref
VOCs (mg/Kg)											
1,1-Dichloroethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, m/p-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, o-	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SVOCs (mg/Kg)											
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-Nitrosodiphenylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides/PCBs (mg/Kg)											
4,4'-DDD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals - Total (mg/Kg)											
Aluminum	64	840	224	210	840	840	380	840	64	840	380
Antimony	0.25	0.91	0.25	0.25	0.91	0.91	0.25	0.91	0.25	0.91	0.25
Arsenic	43	240	32	53	240	240	9.9	240	43	240	9.9
Barium	5.0	13	5.0	5.0	13	13	130	13	5.0	13	130
Beryllium	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Cadmium	0.25	3.9	0.77	0.25	3.9	3.9	0.25	3.9	0.25	3.9	0.25
Chromium	3.1	29	8.8	8.1	29	29	5.3	29	3.1	29	5.3
Cobalt	5.0	44	5.0	5.0	44	44	5.0	44	5.0	44	5.0
Copper	18	47	11	11	47	47	5.0	47	18	47	5.0
Iron	3700	17000	3000	6400	17000	17000	7600	17000	3700	17000	7600
Lead	5.5	33	5.8	5.5	33	33	17	33	5.5	33	17
Manganese	210	240	69	180	240	240	4400	240	210	240	4400
Mercury	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Nickel	5.0	16	5.0	5.0	16	16	5.0	16	5.0	16	5.0
Selenium	0.25	0.58	0.25	0.25	0.58	0.58	0.25	0.58	0.25	0.58	0.25
Silver	3.3	0.25	0.25	0.25	0.25	3.3	0.25	0.25	3.3	3.3	0.25
Thallium	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Vanadium	0.25	3.7	0.97	0.93	3.7	3.7	3.0	3.7	0.25	3.7	3.0
Zinc	76	2400	300	110	2400	2400	30	2400	76	2400	30
Chromium VI	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Miscellaneous (mg/Kg)											
Total Organic Carbon	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes

Total Organic Carbon (TOC) values are averages for the station.

Shading designates that there were no detections of the analyte at the station. The value presented is half of the maximum non-detect.

NA - Not Analyzed or Not Available

Ref - Reference

TABLE 5. SUMMARY INFORMATION - SMALL FISH TISSUE STATION MAXIMUMS

Parameter	Receptor:		Otter	
	Sitewide	Ref	Sitewide	Ref
<u>VOCs (mg/Kg)</u>				
1,1-Dichloroethane	NA	NA	NA	NA
2-Butanone	NA	NA	NA	NA
Acetone	NA	NA	NA	NA
Benzene	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA	NA
Xylene, m/p-	NA	NA	NA	NA
Xylene, o-	NA	NA	NA	NA
<u>SVOCs (mg/Kg)</u>				
2-Methylphenol	NA	NA	NA	NA
Acenaphthene	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA	NA
Anthracene	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA	NA
Benzoic acid	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA
Carbazole	NA	NA	NA	NA
Chrysene	NA	NA	NA	NA
Cyclohexanone	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA	NA
Fluoranthene	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA
N-Nitrosodiphenylamine	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA
Phenol	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA
<u>Pesticides/PCBs (mg/Kg)</u>				
4,4'-DDD	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA	NA
alpha-Chlordane	NA	NA	NA	NA
gamma-Chlordane	NA	NA	NA	NA
<u>Metals - Total (mg/Kg)</u>				
Aluminum	13	5.0	13	5.0
Antimony	0.25	0.25	0.25	0.25
Arsenic	1.6	0.19	1.6	0.19
Barium	5.0	5.0	5.0	5.0
Beryllium	0.50	0.50	0.50	0.50
Cadmium	0.25	0.25	0.25	0.25
Chromium	0.50	0.50	0.50	0.50
Cobalt	5.0	5.0	5.0	5.0
Copper	5.0	5.0	5.0	5.0
Iron	190	89	190	89
Lead	0.50	0.50	0.50	0.50
Manganese	5.0	50	5.0	50
Mercury	0.050	0.17	0.050	0.17
Nickel	5.0	5.0	5.0	5.0
Selenium	1.0	0.56	1.0	0.56
Silver	0.25	0.25	0.25	0.25
Thallium	1.0	1.0	1.0	1.0
Vanadium	0.25	0.25	0.25	0.25
Zinc	30	37	30	37
Chromium VI	NA	NA	NA	NA
<u>Miscellaneous (mg/Kg)</u>				
Total Organic Carbon	NA	NA	NA	NA

Notes

Total Organic Carbon (TOC) values are averages for the station.

Shading designates that there were no detections of the analyte at the station. The value presented is half of the maximum non-detect.

NA - Not Analyzed or Not Available

Ref - Reference

APPENDIX 7C.3

ESTIMATION OF MAXIMUM COPC CONCENTRATIONS IN EARTHWORM TISSUE

TABLE 1
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
MAXIMUM EXPOSURE CASE
STATION A6
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ^a (mg/kg)
Inorganics		
Aluminum	6530	1037
Antimony	50	8.0
Arsenic	719	114
Barium	535	85
Beryllium	0.21	0.033
Cadmium	2.3	0.37
Chromium	2680	425
Cobalt	11	1.7
Copper	611	97
Iron	66900	10619
Lead	5200	825
Manganese	353	56
Mercury	9.6	1.5
Nickel	17	2.6
Selenium	7.6	1.2
Silver	17	2.6
Thallium	42	6.7
Vanadium	37	5.9
Zinc	901	143
Chromium VI	45	7.1

Notes

^a Values based on soil to Earthworm uptake factor of 1.0 for screening models.
Sediment COPC concentration is converted from dry weight to wet weight of earth worms, assuming 84% moisture (Sample, 1998).

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

NA - Formula not available to calculate C_v

TABLE 2
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
MAXIMUM EXPOSURE CASE
STATION BE-1
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ^a (mg/kg)
Inorganics		
Aluminum	7330	1163
Antimony	1.1	0.17
Arsenic	29	4.7
Barium	64	10
Beryllium	0.42	0.067
Cadmium	1.9	0.30
Chromium	35	5.5
Cobalt	6.9	1.1
Copper	89	14
Iron	10500	1667
Lead	143	23
Manganese	174	28
Mercury	0.19	0.030
Nickel	18	2.9
Selenium	2.8	0.44
Silver	5.2	0.83
Thallium	1.1	0.17
Vanadium	30	4.8
Zinc	489	78
Chromium VI	0.37	0.059

Notes

^a Values based on soil to Earthworm uptake factor of 1.0 for screening models.
Sediment COPC concentration is converted from dry weight to wet weight of earth worms, assuming 84% moisture (Sample, 1998).

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

NA - Formula not available to calculate C_v

TABLE 3
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
MAXIMUM EXPOSURE CASE
STATION BE-2
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ^a (mg/kg)
Inorganics		
Aluminum	15200	2413
Antimony	3.1	0.49
Arsenic	375	60
Barium	79	13
Beryllium	0.86	0.14
Cadmium	5.0	0.79
Chromium	75	12
Cobalt	29	4.7
Copper	206	33
Iron	55600	8825
Lead	199	32
Manganese	652	103
Mercury	0.38	0.060
Nickel	29	4.6
Selenium	4.0	0.63
Silver	1.4	0.22
Thallium	2.7	0.43
Vanadium	79	13
Zinc	3200	508
Chromium VI	0.80	0.13

Notes

^a Values based on soil to Earthworm uptake factor of 1.0 for screening models.
Sediment COPC concentration is converted from dry weight to wet weight of earth worms, assuming 84% moisture (Sample, 1998).

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

NA - Formula not available to calculate C_v

TABLE 4
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
MAXIMUM EXPOSURE CASE
STATION BE-4
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ^a (mg/kg)
Inorganics		
Aluminum	11100	1762
Antimony	2.0	0.32
Arsenic	75	12
Barium	40	6.3
Beryllium	0.72	0.11
Cadmium	1.1	0.17
Chromium	182	29
Cobalt	7.9	1.3
Copper	88	14
Iron	14500	2302
Lead	290	46
Manganese	688	109
Mercury	0.19	0.029
Nickel	23	3.7
Selenium	5.3	0.84
Silver	1.3	0.21
Thallium	1.7	0.27
Vanadium	70	11
Zinc	483	77
Chromium VI	2.0	0.31

Notes

^a Values based on soil to Earthworm uptake factor of 1.0 for screening models.
Sediment COPC concentration is converted from dry weight to wet weight of earth worms, assuming 84% moisture (Sample, 1998).

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

NA - Formula not available to calculate C_v

TABLE 5
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
MAXIMUM EXPOSURE CASE
STATION HB02-2
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ^a (mg/kg)
Inorganics		
Aluminum	15000	2381
Antimony	11	1.7
Arsenic	1220	194
Barium	227	36
Beryllium	1.7	0.27
Cadmium	30	4.7
Chromium	407	65
Cobalt	69	11
Copper	621	99
Iron	233000	36984
Lead	426	68
Manganese	3900	619
Mercury	1.3	0.21
Nickel	48	7.6
Selenium	8.7	1.4
Silver	1.4	0.22
Thallium	18	2.8
Vanadium	84	13
Zinc	6040	959
Chromium VI	4.4	0.69

Notes

^a Values based on soil to Earthworm uptake factor of 1.0 for screening models.
Sediment COPC concentration is converted from dry weight to wet weight of earth worms, assuming 84% moisture (Sample, 1998).

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

NA - Formula not available to calculate C_v

TABLE 6
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
MAXIMUM EXPOSURE CASE
STATION HB03-3
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ^a (mg/kg)
Inorganics		
Aluminum	14600	2317
Antimony	8.1	1.3
Arsenic	533	85
Barium	171	27
Beryllium	1.7	0.27
Cadmium	16	2.5
Chromium	294	47
Cobalt	55	8.8
Copper	586	93
Iron	100000	15873
Lead	300	48
Manganese	2580	410
Mercury	1.7	0.27
Nickel	33	5.2
Selenium	4.9	0.78
Silver	14	2.2
Thallium	6.5	1.0
Vanadium	69	11
Zinc	1930	306
Chromium VI	3.2	0.50

Notes

^a Values based on soil to Earthworm uptake factor of 1.0 for screening models.
Sediment COPC concentration is converted from dry weight to wet weight of earth worms, assuming 84% moisture (Sample, 1998).

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

NA - Formula not available to calculate C_v

TABLE 7
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
MAXIMUM EXPOSURE CASE
STATION HB04
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ^a (mg/kg)
Inorganics		
Aluminum	5150	817
Antimony	1.1	0.17
Arsenic	33	5.2
Barium	18	2.8
Beryllium	0.30	0.048
Cadmium	0.72	0.11
Chromium	39	6.2
Cobalt	4.2	0.67
Copper	44	6.9
Iron	8490	1348
Lead	50	7.9
Manganese	98	16
Mercury	0.32	0.051
Nickel	8.3	1.3
Selenium	0.84	0.13
Silver	0.10	0.016
Thallium	0.81	0.13
Vanadium	13	2.1
Zinc	84	13
Chromium VI	0.65	0.10

Notes

^a Values based on soil to Earthworm uptake factor of 1.0 for screening models.
Sediment COPC concentration is converted from dry weight to wet weight of earth worms, assuming 84% moisture (Sample, 1998).

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

NA - Formula not available to calculate C_v

TABLE 8
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
MAXIMUM EXPOSURE CASE
WETLAND REFERENCE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ^a (mg/kg)
Inorganics		
Aluminum	14300	2270
Antimony	1.2	0.19
Arsenic	41	6.4
Barium	88	14
Beryllium	1.2	0.19
Cadmium	2.9	0.46
Chromium	410	65
Cobalt	13	2.1
Copper	130	21
Iron	24200	3841
Lead	581	92
Manganese	263	42
Mercury	0.71	0.11
Nickel	27	4.3
Selenium	2.1	0.33
Silver	2.9	0.46
Thallium	1.0	0.16
Vanadium	148	23
Zinc	251	40
Chromium VI	4.4	0.70

Notes

^a Values based on soil to Earthworm uptake factor of 1.0 for screening models.
Sediment COPC concentration is converted from dry weight to wet weight of earth worms, assuming 84% moisture (Sample, 1998).

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

NA - Formula not available to calculate C_v

APPENDIX 7C.4

TOXICITY REFERENCE VALUES - NOAELs

TABLE 1
TOXICITY REFERENCE VALUES FOR MUSKRAT
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV (mg/kg - d) ⁵	Test TRV Type	NOAEL ⁶	Source	Wildlife TRV (mg/kg-d) ⁷
Volatile Organics										
1,1-Dichloroethane	rat	0.35	oral (intermediate)	78 wk	systemic	764	NOAEL	764	NCI, 1977 (in ATSDR, 1990)	614.4
2-Butanone	rat	0.35	oral gavage (intermediate)	13 wk	neurological	121	LOAEL	12.1	Ralston, et al., 1985 (in ATSDR, 1992)	9.7
Acetone	rat	0.35	oral in water (intermediate)	13 wk	reproductive	1700	NOAEL	1700	NTP, 1991 (in ATSDR, 1994)	1367.1
Benzene	mouse	0.03	oral gavage	6-12 d	reproductive	263.6	LOAEL	26.36	Nawrot & Staples, 1979 (in Sample, et al., 1996)	11.5
Carbon Disulfide	rat	0.35	oral (intermediate)	4 wk	cardiovascular	253	LOAEL	126	Hoffmann & Klapperstuck, 1990 (in ATSDR, 1996)	101.3
Vinyl Chloride	rat	0.35	oral in diet	144 wk	mortality	1.7	LOAEL	0.17	Feron, et al., 1981 (in Sample, et al., 1996)	0.1
Xylene, m/p-	mouse	0.03	oral gavage	6-12 d	reproductive	2.1	NOAEL	2.1	Marks, et al., 1982 (in ATSDR, 1995)	0.9
Xylene, o-	mouse	0.03	oral gavage	6-12 d	reproductive	2.1	NOAEL	2.1	Marks, et al., 1982 (in ATSDR, 1995)	0.9
Semivolatile Organics										
2-Methylphenol	NA									NA
Acenaphthene	mouse	0.03	oral gavage (intermediate)	13 wk	reproductive	350.0	NOAEL	350.0	EPA, 1989c (in ATSDR, 1995)	152.3
Acenaphthylene ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995	58.0
Anthracene ³	mouse	0.03	oral gavage (intermediate)	13 wk	reproductive	1000	NOAEL	1000	EPA, 1989d (in ATSDR, 1995)	435.1
Benzo(a)anthracene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	Neal & Riggdon, 1967 (in ATSDR, 1995)	0.6
Benzo(a)pyrene	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	Neal & Riggdon, 1967 (in ATSDR, 1995)	0.6
Benzo(b)fluoranthene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	Neal & Riggdon, 1967 (in ATSDR, 1995)	0.6
Benzo(g,h,i)perylene ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995	58.0
Benzo(k)fluoranthene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	Neal & Riggdon, 1967 (in ATSDR, 1995)	0.6
Benzoic acid	rat	0.35	oral in food	4 gen	growth, organ weight	500	NOAEL	500	Kieckebusch & Lang, 1060 (in WHO, 2000)	402.1
bis(2-Ethylhexyl)phthalate	mouse	0.03	oral in diet	105 d	reproductive	183.30	LOAEL	18.33	Lamb, et al., 1987 (in Sample, et al., 1996)	8.0
Carbazole ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995	58.0
Chrysene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	ATSDR, 1995	0.6
Cyclohexanone	NA									NA
Dibenz(a,h)anthracene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	Neal & Riggdon, 1967 (in ATSDR, 1995)	0.6
Fluoranthene ³	mouse	0.03	oral gavage (intermediate)	13 wk	hepatic	125	NOAEL	125	EPA, 1988e (in ATSDR, 1995)	54.4
Fluorene ³	mouse	0.03	oral gavage (intermediate)	13 wk	hematological	125	NOAEL	125	EPA, 1988e (in ATSDR, 1995)	54.4
Indeno(1,2,3-cd)pyrene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	Neal & Riggdon, 1967 (in ATSDR, 1995)	0.6
Naphthalene	mouse	0.03	oral gavage (intermediate)	13 wk	reproductive	200	NOAEL	200	NTP, 1980a (in ATSDR, 2003)	87.0
N-Nitrosodiphenylamine	rat	0.35	oral in food (intermediate)	8-11 wk	systemic	150	NOAEL	150	NCI, 1979 (in ATSDR, 1993)	120.6
Phenanthrene ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995	58.0
Phenol	rat	0.35	oral in food (intermediate)	13 wk	reproductive	1566.0	NOAEL	1694.0	NCI, 1980 (in ATSDR, 1998)	1362.2
Pyrene ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995	58.0
Pesticides/PCBs										
4,4'-DDD	mouse	0.03	oral in food (chronic)	130 wk	cancer	42.6	LOAEL	4.26	Tomatis, et al., 1974 (in ATSDR, 2002)	1.9
4,4'-DDE	mouse	0.03	oral in food (chronic)	78 wk	cancer	27	LOAEL	2.7	NCI, 1978 (in ATSDR, 1994)	1.2
4,4'-DDT	rat	0.35	oral in diet (chronic)	2 yr	reproductive	0.80	NOAEL	0.80	Fitzhugh, 1948 (cited in Sample, et al., 1996)	0.6
alpha-Chlordane	mouse	0.03	oral in diet (chronic)	6 gen	reproductive	4.58	NOAEL	4.58	WHO, 1984 (cited in Sample, et al., 1996)	2.0
gamma-Chlordane	mouse	0.03	oral in diet (chronic)	6 gen	reproductive	4.58	NOAEL	4.58	WHO, 1984 (Cited in Sample, et al., 1996)	2.0

TABLE 1
TOXICITY REFERENCE VALUES FOR MUSKRAT (CONTINUED)
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV (mg/kg - d) ⁵	Test TRV Type	NOAEL ⁶	Source	Wildlife TRV (mg/kg-d) ⁷
Metals										
Aluminum	rat	0.35	oral in water (chronic)	116 d	reproductive	52	NOAEL	52	Domingo, et al., 1987c (in ATSDR, 1999)	41.8
Antimony	mouse	0.03	oral in water (chronic)	lifetime, >1 yr	lifespan	1.25	LOAEL	0.125	Schroeder, et al, 1968 (in Sample, et al., 1996)	0.05
Arsenic	rat	0.35	oral in water (chronic)	2 yr	growth/development	2	NOAEL	2.00	Byron, et. al, 1967 (in ATSDR, 2000)	1.61
Barium	rat	0.435	oral in water (chronic)	16 mo	growth	5.1	NOAEL	5.1	Perry, et al. 1983 (in Sample, et al., 1996)	4.3
Beryllium	rat	0.35	oral in water (chronic)	lifetime, >1 yr	longevity	0.66	NOAEL	0.66	Schroeder & Mitchner, 1975 (in Sample, et al., 1996)	0.5
Cadmium	rat	0.30	oral gavage (chronic)	6 wk	reproductive	1.0	NOAEL	1.0	Sutou, et al, 1980b (in Sample, et al., 1996)	0.8
Chromium	rat	0.35	oral in food (subchronic)	20 wk	systemic	9	NOAEL	9	Anderson, Bryden & Polansky, 1997b (in ATSDR, 2000)	7
Cobalt	rat	0.35	oral in food (intermediate)	69 d	reproductive	5	NOAEL	5	Nation, et al., 1983 (in ATSDR, 1992)	4.0
Copper	mink	1.0	oral in diet (chronic)	357 d	reproductive	11.7	NOAEL	11.7	Aulerich, et al., 1982 (in Sample, et al., 1996)	12.2
Iron	NA									NA
Lead	rat	0.35	oral in diet (chronic)	3 gen	reproductive	8.0	NOAEL	8.0	Azar, et al., 1973 (in Sample, et al., 1996)	6.4
Manganese	rat	0.35	oral in diet (chronic)	224 d	reproductive	88	NOAEL	88	Laskey, et al., 1982 (in Sample, et al., 1996)	70.8
Mercury	rat	0.35	oral in diet (chronic)	3 gen	reproductive	0.032	NOAEL	0.032	Verschueren, et al., 1976 (in Sample, et al., 1996)	0.03
Nickel	rat	0.35	oral in diet (chronic)	3 gen	reproductive	40	NOAEL	40	Ambrose, et al., 1976 (in Sample, et al., 1996)	32.2
Selenium	rat	0.35	oral in water (chronic)	1 yr	reproductive	0.2	NOAEL	0.2	Rosenfeld & Beath, 1954 (in Sample, et al., 1996)	0.2
Silver	rat	0.35	oral in water (acute)	2 wk	mortality	181.2	NOAEL	181.2	Walker, 1971 (in ATSDR, 1990)	145.7
Thallium	rat	0.37	oral in water (subchronic)	60 d	reproductive	0.74	LOAEL	0.074	Formigli, et al., 1986 (in Sample, et al., 1996)	0.1
Vanadium	rat	0.26	oral intubation (chronic)	60 d +	reproductive	2.1	LOAEL	0.21	Domingo, et al., 1986 (in Sample, et al., 1996)	0.2
Zinc	rat	0.35	oral in diet (chronic)	d 1-16 of gestation	reproductive	160	NOAEL	160	Schlicker & Cox, 1968 (in Sample, et al., 1996)	128.7
Chromium VI	rat	0.35	oral in water	1 yr	body weight	3.28	NOAEL	3.28	Mackenzie et al. 1958 (in Sample, et al., 1996)	2.6

Notes:

d - day(s)

wk - week(s)

mo - month(s)

yr - year(s)

gen - generations

COPC - Chemical of Potential Concern

TRV - Toxicity Reference Value

NOAEL - No Observed Adverse Effect Level

LOAEL - Lowest Observed Adverse Effect Level

NA - Not Available

1 COPC or COPC and analyte/compound used in toxicological testing.

2 Body weight for mouse and rat based on USEPA 1985b (cited in Sample, et al., 1996), other body weights are actual body weights of animals used in test.

3 Lowest non-carcinogenic NOAEL from PAH toxicological data summarized in ATSDR, 1995; test used benzo(a)pyrene. USEPA has indicated that acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, phenanthrene and pyrene are not classifiable as carcinogens (ATSDR, 1995). Carbazole was included in this group for the development of HQs.

4 Lowest carcinogenic LOAEL from PAH toxicological data summarized in ATSDR, 1995; test used benzo(a)pyrene. USEPA has classified benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene as carcinogens (ATSDR, 1995).

5 TRVs for studies in which dose was administered five times per week were multiplied for a factor of 0.7.

6 LOAEls were divided by an uncertainty factor of 10 to obtain NOAEls.

7 Test NOAEls were adjusted for wildlife species body weight using the following equation: NOAELwildlife = NOAELtest * (BW test/BW wildlife) ^ 0.25 (Sample, et al., 1996).

TABLE 2
TOXICITY REFERENCE VALUES FOR OTTER
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV (mg/kg - d) ⁵	Test TRV Type	NOAEL ⁶	Source	Wildlife TRV (mg/kg-d) ⁷
Volatile Organics										
1,1-Dichloroethane	rat	0.35	oral (intermediate)	78 wk	systemic	764	NOAEL	764	NCI, 1977 (in ATSDR, 1990)	350.5
2-Butanone	rat	0.35	oral gavage (intermediate)	13 wk	neurological	121	LOAEL	12.1	Ralston, et al., 1985 (in ATSDR, 1992)	5.6
Acetone	rat	0.35	oral in water (intermediate)	13 wk	reproductive	1700	NOAEL	1700	NTP, 1991 (in ATSDR, 1994)	779.9
Benzene	mouse	0.03	oral gavage	6-12 d	reproductive	263.6	LOAEL	26.36	Nawrot & Staples, 1979 (in Sample, et al., 1996)	6.5
Carbon Disulfide	rat	0.35	oral (intermediate)	4 wk	cardiovascular	253	LOAEL	126	Hoffmann & Klapperstuck, 1990 (in ATSDR, 1996)	57.8
Vinyl Chloride	rat	0.35	oral in diet	144 wk	mortality	1.7	LOAEL	0.17	Feron, et al., 1981 (in Sample, et al., 1996)	0.1
Xylene, m/p-	mouse	0.03	oral gavage	6-12 d	reproductive	2.1	NOAEL	2.1	Marks, et al., 1982 (in ATSDR, 1995)	0.5
Xylene, o-	mouse	0.03	oral gavage	6-12 d	reproductive	2.1	NOAEL	2.1	Marks, et al., 1982 (in ATSDR, 1995)	0.5
Semivolatile Organics										
2-Methylphenol	NA									NA
Acenaphthene	mouse	0.03	oral gavage (intermediate)	13 wk	reproductive	350.0	NOAEL	350.0	EPA, 1989c (in ATSDR, 1995)	86.9
Acenaphthylene ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995b	33.1
Anthracene ³	mouse	0.03	oral gavage (intermediate)	13 wk	reproductive	1000	NOAEL	1000	EPA, 1989d (in ATSDR, 1995)	248.2
Benzo(a)anthracene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	ATSDR, 1995b	0.3
Benzo(a)pyrene	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	Neal & Rigdon, 1967 (in ATSDR, 1995)	0.3
Benzo(b)fluoranthene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	ATSDR, 1995	0.3
Benzo(g,h,i)perylene ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995	33.1
Benzo(k)fluoranthene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	ATSDR, 1995	0.3
Benzoic acid	rat	0.35	oral in food	4 gen	growth, organ weight	500	NOAEL	500	Kieckebusch & Lang, 1060 (in WHO, 2000)	229
bis(2-Ethylhexyl)phthalate	mouse	0.03	oral in diet	105 d	reproductive	183.30	LOAEL	18.33	Lamb et al., 1987 (in Sample, et al., 1996)	4.6
Carbazole ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995	33.1
Chrysene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	ATSDR, 1995	0.3
Cyclohexanone	NA									NA
Dibenz(a,h)anthracene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	ATSDR, 1995	0.3
Fluoranthene ³	mouse	0.03	oral gavage (intermediate)	13 wk	hepatic	125	NOAEL	125	EPA, 1988e (in ATSDR, 1995)	31.0
Fluorene ³	mouse	0.03	oral gavage (intermediate)	13 wk	hematological	125	NOAEL	125	EPA, 1988e (in ATSDR, 1995)	31.0
Indeno(1,2,3-cd)pyrene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	ATSDR, 1995	0.3
Naphthalene	mouse	0.03	oral gavage (intermediate)	13 wk	reproductive	200	NOAEL	200	NTP, 1980a (in ATSDR, 2003)	49.6
N-Nitrosodiphenylamine	rat	0.35	oral in food (intermediate)	8-11 wk	systemic	150	NOAEL	150	ATSDR, 1993	68.8
Phenanthrene ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995	33.1
Phenol	rat	0.35	oral in food (intermediate)	13 wk	reproductive	1566.0	NOAEL	1694.0	NCI, 1980 (in ATSDR, 1998)	777.2
Pyrene ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995b	33.1
Pesticides/PCBs										
4,4'-DDD	mouse	0.03	oral in food (chronic)	130 wk	cancer	42.6	LOAEL	4.26	Tomatis, et al., 1974 (in ATSDR, 2002)	1.1
4,4'-DDE	mouse	0.03	oral in food (chronic)	78 wk	cancer	27	LOAEL	2.7	NCI, 1978 (in ATSDR, 1994)	0.7
4,4'-DDT	rat	0.35	oral in diet (chronic)	2 yr	reproductive	0.80	NOAEL	0.80	Fitzhugh, 1948 (in Sample, et al., 1996)	0.4
alpha-Chlordane	mouse	0.03	oral in diet (chronic)	6 gen	reproductive	4.58	NOAEL	4.58	WHO, 1984 (in Sample, et al., 1996)	1.1
gamma-Chlordane	mouse	0.03	oral in diet (chronic)	6 gen	reproductive	4.58	NOAEL	4.58	WHO, 1984 (in Sample, et al., 1996)	1.1

TABLE 2
TOXICITY REFERENCE VALUES FOR OTTER (CONTINUED)
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV (mg/kg - d) ⁵	Test TRV Type	NOAEL ⁶	Source	Wildlife TRV (mg/kg-d) ⁷
Metals										
Aluminum	rat	0.35	oral in water (chronic)	116 d	reproductive	52	NOAEL	52	Domingo, et al., 1987 (in ATSDR, 1999)	23.9
Antimony	mouse	0.03	oral in water (chronic)	lifetime, >1 yr	lifespan	1.25	LOAEL	0.125	Schroeder, et al., 1968b (in Sample, et al., 1996)	0.03
Arsenic	rat	0.35	oral in water (chronic)	2 gen	growth/development	2	NOAEL	2.00	Byron, et. al, 1967 (in ATSDR, 2000)	0.92
Barium	rat	0.435	oral in water (chronic)	16 mo	growth	5.1	NOAEL	5.1	Perry, et al., 1983 (in Sample, et al., 1996)	2.5
Beryllium	rat	0.35	oral in water (chronic)	lifetime, >1 yr	longevity	0.66	NOAEL	0.66	Schroeder & Mitchner, 1975 (in Sample, et al., 1996)	0.3
Cadmium	rat	0.30	oral gavage (chronic)	6 wk	reproductive	1.0	NOAEL	1.0	Sutou, et al., 1980b (in Sample, et al., 1996)	0.4
Chromium	rat	0.35	oral in food (subchronic)	20 wk	systemic	9	NOAEL	9	Anderson, et al., 1997b (in ATSDR, 2000)	4.1
Cobalt	rat	0.35	oral in food (intermediate)	69 d	reproductive	5	NOAEL	5	Nation, et al., 1985 (in ATSDR, 1992d)	2.3
Copper	mink	1.0	oral in diet (chronic)	357 d	reproductive	11.7	NOAEL	11.7	Aulerich, et al., 1982 (Sample, et al., 1996)	7.0
Iron	NA									NA
Lead	rat	0.35	oral in diet (chronic)	3 gen	reproductive	8.0	NOAEL	8.0	Azar, et al., 1973 (in Sample, et al., 1996)	3.7
Manganese	rat	0.35	oral in diet (chronic)	224 d	reproductive	88	NOAEL	88	Laskey, et al., 1982 (in Sample, et al., 1996)	40.4
Mercury	rat	0.35	oral in diet (chronic)	3 gen	reproductive	0.032	NOAEL	0.032	Verschuur, et al., 1976 (in Sample, et al., 1996)	0.01
Nickel	rat	0.35	oral in diet (chronic)	3 gen	reproductive	40	NOAEL	40	Ambrose, et al., 1976 (in Sample, et al., 1996)	18.4
Selenium	rat	0.35	oral in water (chronic)	1 yr	reproductive	0.2	NOAEL	0.2	Rosenfeld & Beath, 1954 (in Sample, et al., 1996)	0.1
Silver	rat	0.35	oral in water (acute)	2 wk	mortality	181.2	NOAEL	181.2	Walker, 1971 (in ATSDR, 1990)	83.1
Thallium	rat	0.37	oral in water (subchronic)	60 d	reproductive	0.74	LOAEL	0.074	Formigli, et al., 1986 (in Sample, et al., 1996)	0.0
Vanadium	rat	0.26	oral intubation (chronic)	60 d +	reproductive	2.1	LOAEL	0.21	Domingo, et al., 1986 (in Sample, et al., 1996)	0.1
Zinc	rat	0.35	oral in diet (chronic)	d 1-16 of gestation	reproductive	160	NOAEL	160	Schlicker & Cox, 1968 (in Sample, et al., 1996)	73.4
Chromium VI	rat	0.35	oral in water	1 yr	body weight	3.28	NOAEL	3.28	MacKenzie, et al. 1958 (in Sample, et al., 1996)	1.5

Notes:

d - day(s)

wk - week(s)

mo - month(s)

yr -year(s)

gen - generations

COPC - Chemical of Potential Concern

TRV - Toxicity Reference Value

NOAEL - No Observed Adverse Effect Level

LOAEL - Lowest Observed Adverse Effect Level

NA - Not Available

1 COPC or COPC and analyte/compound used in toxicological testing.

2 Body weight for mouse and rat based on USEPA 1985b (cited in Sample, et al., 1996), other body weights are actual body weights of animals used in test.

3 Lowest non-carcinogenic NOAEL from PAH toxicological data summarized in ATSDR, 1995; test used benzo(a)pyrene. USEPA has

indicated that acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, phenanthrene and pyrene are not

classifiable as carcinogens (ATSDR, 1995). Carbazole was included in this group for the development of HQs.

4 Lowest carcinogenic LOAEL from PAH toxicological data summarized in ATSDR, 1995; test used benzo(a)pyrene. USEPA has classified benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene as carcinogens (ATSDR, 1995).

5 TRVs for studies in which dose was administered five times per week were multiplied for a factor of 0.7.

6 LOAELs were divided by an uncertainty factor of 10 to obtain NOAELs.

7 Test NOAELs were adjusted for wildlife species body weight using the following equation: NOAELwildlife = NOAELtest * (BW test/BW wildlife) ^ 0.25 (Sample, et al., 1996).

TABLE 3
TOXICITY REFERENCE VALUES FOR HERON
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV (mg/kg - d) ⁵	Test TRV Type	NOAEL ⁶	Source ⁷	Wildlife TRV (mg/kg-d) ⁸
Volatile Organics										
1,1-Dichloroethane	rat	0.35	oral (intermediate)	78 wk	systemic	764	NOAEL	764	NCI, 1977 (in ATSDR, 1990)	764
2-Butanone	rat	0.35	oral gavage (intermediate)	13 wk	neurological	121	LOAEL	12.1	Ralston et al., 1985 (in ATSDR, 1992a)	12.1
Acetone	rat	0.35	oral in water (intermediate)	13 wk	reproductive	1700	NOAEL	1700	NTP, 1991 (in ATSDR, 1994a)	1700
Benzene	mouse	0.03	oral gavage	6-12 days	reproductive	263.6	LOAEL	26.36	Nawrot & Staples, 1979 (in Sample et al., 1996)	26.36
Carbon Disulfide	rat	0.35	oral (intermediate)	4 wks	cardiovascular	253	LOAEL	126	Hoffmann & Klapperstuck, 1990 (in ATSDR, 1996)	126
Vinyl Chloride	rat	0.35	oral in diet	144 wks	mortality	1.7	LOAEL	0.17	Feron et al., 1981 (in Sample et al., 1996)	0.17
Xylene, m/p-	mouse	0.03	oral gavage	6-12 days	reproductive	2.1	NOAEL	2.1	Marks et al., 1982 (in ATSDR, 1995)	2.1
Xylene, o-	mouse	0.03	oral gavage	6-12 days	reproductive	2.1	NOAEL	2.1	Marks et al., 1982 (in ATSDR, 1995)	2.1
Semivolatile Organics										
2-Methylphenol	NA									NA
Acenaphthene	See LMW PAHs									NA
Acenaphthylene	See LMW PAHs									NA
Anthracene	See LMW PAHs									NA
Benzo(a)anthracene	mouse	0.03	oral in food (intermediate)	30-197 days	cancer	1.30	NOAEL	1.30	ATSDR, 1995b	1.3
Benzo(a)pyrene	mouse	0.03	oral in food (intermediate)	30-197 days	cancer	1.30	NOAEL	1.30	Neal & Rigdon, 1967 (in ATSDR, 1995b)	1.3
Benzo(b)fluoranthene	mouse	0.03	oral in food (intermediate)	30-197 days	cancer	1.30	NOAEL	1.30	ATSDR, 1995b	1.3
Benzo(g,h,i)perylene	mouse	0.03	oral in food (intermediate)	19-29 days	reproductive	133.3	NOAEL	133.3	ATSDR, 1995b	133.3
Benzo(k)fluoranthene	mouse	0.03	oral in food (intermediate)	30-197 days	cancer	1.30	NOAEL	1.30	ATSDR, 1995b	1.3
Benzoic acid	rat	0.35	oral in food	4 gen	growth, organ weight	500	NOAEL	500	Kieckebusch & Lang, 1060 (in WHO, 2000)	500
bis(2-Ethylhexyl)phthalate	ringed dove	0.16	oral in diet	4 wk	reproductive	1.10	NOAEL	1.10	Peakall, 1974 (in Sample, et al., 1996)	1.1
Carbazole	mouse	0.03	oral in food (intermediate)	19-29 days	reproductive	133.3	NOAEL	133.3	ATSDR, 1995b	133.3
Chrysene	mouse	0.03	oral in food (intermediate)	30-197 days	cancer	1.30	NOAEL	1.30	ATSDR, 1995b	1.3
Cyclohexanone	NA									NA
Dibenz(a,h)anthracene	mouse	0.03	oral in food (intermediate)	30-197 days	cancer	1.30	NOAEL	1.30	ATSDR, 1995b	1.3
Fluoranthene	mouse	0.03	oral gavage (intermediate)	13 wk	hepatic	125	NOAEL	125	EPA, 1988e (in ATSDR, 1995b)	125
Fluorene	See LMW PAHs									NA
Indeno(1,2,3-cd)pyrene	mouse	0.03	oral in food (intermediate)	30-197 days	cancer	1.30	NOAEL	1.30	ATSDR, 1995b	1.3
Naphthalene	See LMW PAHs									NA
N-nitrosodiphenylamine	rat	0.35	oral in food (intermediate)	8-11 wk	systemic	150	NOAEL	150	ATSDR, 1993	150
Phenanthrene	See LMW PAHs									NA
Phenol	rat	0.35	oral in food (intermediate)	13 wk	reproductive	1566.0	NOAEL	1694.0	NCI, 1980 (in ATSDR, 1998)	1694
Pyrene	mouse	0.03	oral in food (intermediate)	19-29 days	reproductive	133.3	NOAEL	133.3	ATSDR, 1995b	133.3
Low Molecular Weight PAHs ⁸	mallard	1.00	oral	7 mo	hepatic	400.0	LOAEL	40.0	Patton & Dieter, 1980	40
Pesticides/PCBs										
4,4'-DDD	mouse	0.03	oral in food (chronic)	130 wk	cancer	42.6	LOAEL	4.26	Tomatis, et al., 1974 (in ATSDR, 2002)	4.3
4,4'-DDE	mouse	0.03	oral in food (chronic)	78 wk	cancer	27	LOAEL	2.7	NCI, 1978 (in ATSDR, 1994)	2.7
4,4'-DDT	brown pelican	3.50	oral in diet (chronic)	5 yr	reproductive	0.03	LOAEL	0.003	Anderson, et al., 1975 (in Sample, et al., 1996)	0.0028
alpha-Chlordane	red-winged blackbird	0.06	oral in diet (chronic)	84 d	mortality	2.14	NOAEL	2.14	Stickel, et al., 1983 (in Sample, et al., 1996)	2.14
gamma-Chlordane	red-winged blackbird	0.06	oral in diet (chronic)	84 d	mortality	2.14	NOAEL	2.14	Stickel, et al., 1983 (in Sample, et al., 1996)	2.14

TABLE 3
TOXICITY REFERENCE VALUES FOR HERON (CONTINUED)
WELLS G&H SUPERFUND SITE OU3

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV (mg/kg - d) ⁵	Test TRV Type	NOAEL ⁶	Source ⁷	Wildlife TRV (mg/kg-d) ⁸
Metals										
Aluminum	ringed dove	0.16	oral in diet (chronic)	4 mo	reproductive	109.7	NOAEL	109.7	Carriere, et al., 1986 (in Sample, et al., 1996)	109.7
Antimony	mouse	0.03	oral in water (chronic)	lifetime, >1 year	lifespan	1.25	LOAEL	0.125	Schroeder et al. 1968b (in Sample et al., 1996)	0.1
Arsenic	mallard	1.00	oral in diet (chronic)	128 d	mortality	5.14	NOAEL	5.14	USFWS, 1964 (in Sample, et al., 1996)	5.1
Barium	1-day old chickens	0.121	oral in diet (subchronic)	4 wk	mortality	208	NOAEL	208	Johnson, et al., 1960 (in Sample, et al., 1996)	208.0
Beryllium	rat	0.35	oral in water (chronic)	lifetime, >1 year	longevity	0.66	NOAEL	0.66	Schroeder & Mitchner, 1975 (in Sample et al., 1996)	0.7
Cadmium	mallard	1.15	oral in diet (chronic)	90 d	reproductive	1.5	NOAEL	1.5	White & Firley, 1978 (in Sample, et al., 1996)	1.5
Chromium	black duck	1.25	oral in diet (chronic)	10 mo	reproductive	1.0	NOAEL	1.0	Haseltine, et al., unpubl. (in Sample, et al., 1996)	1.0
Cobalt	avian herbivore	NA	oral in diet	NA	reproductive	7.61	NOAEL	7.61	ECO-SSL, USEPA 2003	7.6
Copper	1-day old chickens	0.5	oral in diet (chronic)	10 wk	mortality	47.0	NOAEL	47.0	Mehring, et al., 1960 (in Sample, et al., 1996)	47.0
Iron	NA									NA
Lead	Japanese quail	0.15	oral in diet (chronic)	12 wk	reproductive	1.1	NOAEL	1.1	Edens, et al., 1976 (in Sample, et al., 1996)	1.1
Manganese	1-day old J. quail	0.072	oral in diet (chronic)	75 d	growth	977	NOAEL	977	Laskey & Edens, 1985 (in Sample, et al., 1996)	977.0
Mercury	mallard	1	oral in diet (chronic)	3 gen	reproductive	0.064	LOAEL	0.0064	Heinz, 1979 (in Sample, et al., 1996)	0.0064
Nickel	mallard	0.782	oral in diet (chronic)	90 d	mortality	77.4	NOAEL	77.4	Cain & Pafford, 1981 (in Sample, et al., 1996)	77.4
Selenium	mallard	1	oral in diet (chronic)	100 d	reproductive	0.4	NOAEL	0.4	Heinz, et al., 1989 (in Sample, et al., 1996)	0.4
Silver	rat	0.35	oral in water (acute)	2 wk	mortality	181.2	NOAEL	181.2	Walker, 1971 (in ATSDR, 1990)	181.2
Thallium	rat	0.37	oral in water (subchronic)	60 d	reproductive	0.74	LOAEL	0.074	Formigli et al., 1986 (in Sample et al., 1996)	0.1
Vanadium	mallard	1.17	oral in diet (chronic)	12 wk	mortality	11.4	NOAEL	11.4	White & Dieter, 1978 (in Sample, et al., 1996)	11.4
Zinc	white leg-horn	1.94	oral in diet (chronic)	44 wk	reproductive	15	NOAEL	15	Stahl, et al., 1990 (in Sample, et al., 1996)	14.5
Chromium VI	NA									NA NA

Notes:

d - day(s)

wk - week(s)

mo - month(s)

yr -year(s)

gen - generations

COPC - Chemical of Potential Concern

TRV - Toxicity Reference Value

NOAEL - No Observed Adverse Effect Level

LOAEL - Lowest Observed Adverse Effect Level

NA - Not Available

1 COPC or COPC and analyte/compound used in toxicological testing.

2 Body weight for mouse and rat based on USEPA 1985b (cited in Sample, et al., 1996), other body weights are actual body weights of animals used in test.

3 Lowest non-carcinogenic NOAEL from PAH toxicological data summarized in ATSDR, 1995; test used benzo(a)pyrene. USEPA has indicated that acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, phenanthrene and pyrene are not classifiable as carcinogens (ATSDR, 1995). Carbazole was included in this group for the development of HQs.

4 Lowest carcinogenic LOAEL from PAH toxicological data summarized in ATSDR, 1995; test used benzo(a)pyrene. USEPA has classified benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene as carcinogens (ATSDR, 1995).

5 TRVs for studies in which dose was administered five times per week were multiplied for a factor of 0.7.

6 LOAELs were divided by an uncertainty factor of 10 to obtain NOAELs.

7 Test NOAELs were adjusted for wildlife species body weight using the following equation: NOAELwildlife = NOAELtest * (BW test/BW wildlife) ^ 0.25 (Sample, et al., 1996).

TABLE 4
TOXICITY REFERENCE VALUES FOR MALLARD
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV (mg/kg - d) ⁵	Test TRV Type	NOAEL ⁶	Source ⁷	Wildlife TRV (mg/kg-d) ⁸
Volatile Organics										
1,1-Dichlorethane	rat	0.35	oral (intermediate)	78 wk	systemic	764	NOAEL	764	NCI, 1977 (in ATSDR, 1990)	764
2-Butanone	rat	0.35	oral gavage (intermediate)	13 wk	neurological	121	LOAEL	12.1	Ralston et al., 1985 (in ATSDR, 1992a)	12.1
Acetone	rat	0.35	oral in water (intermediate)	13 wk	reproductive	1700	NOAEL	1700	NTP, 1991 (in ATSDR, 1994a)	1700
Benzene	mouse	0.03	oral gavage	6-12 days	reproductive	263.6	LOAEL	26.36	Nawrot & Staples, 1979 (in Sample et al., 1996)	26.36
Carbon Disulfide	rat	0.35	oral (intermediate)	4 wks	cardiovascular	253	LOAEL	126	Hoffmann & Klapperstuck, 1990 (in ATSDR, 1996)	126
Vinyl Chloride	rat	0.35	oral in diet	144 wks	mortality	1.7	LOAEL	0.17	Feron et al., 1981 (in Sample et al., 1996)	0.17
Xylene, m/p-	mouse	0.03	oral gavage	6-12 days	reproductive	2.1	NOAEL	2.1	Marks et al., 1982 (in ATSDR, 1995)	2.1
Xylene, o-	mouse	0.03	oral gavage	6-12 days	reproductive	2.1	NOAEL	2.1	Marks et al., 1982 (in ATSDR, 1995)	2.1
Semivolatile Organics										
2-Methylphenol	NA									NA
Acenaphthene	See LMW PAHs									NA
Acenaphthylene	See LMW PAHs									NA
Anthracene	See LMW PAHs									NA
Benzo(a)anthracene	mouse	0.03	oral in food (intermediate)	30-197 days	cancer	1.30	NOAEL	1.30	ATSDR, 1995b	1.3
Benzo(a)pyrene	mouse	0.03	oral in food (intermediate)	30-197 days	cancer	1.30	NOAEL	1.30	Neal & Riggdon, 1967 (in ATSDR, 1995b)	1.3
Benzo(b)fluoranthene	mouse	0.03	oral in food (intermediate)	30-197 days	cancer	1.30	NOAEL	1.30	ATSDR, 1995b	1.3
Benzo(g,h,i)perylene	mouse	0.03	oral in food (intermediate)	19-29 days	reproductive	133.3	NOAEL	133.3	ATSDR, 1995b	133.3
Benzo(k)fluoranthene	mouse	0.03	oral in food (intermediate)	30-197 days	cancer	1.30	NOAEL	1.30	ATSDR, 1995b	1.3
Benzoic acid	rat	0.35	oral in food	4 gen	growth, organ weight	500	NOAEL	500	Kieckebusch & Lang, 1060 (in WHO, 2000)	500
bis(2-Ethylhexyl)phthalate	ringed dove	0.16	oral in diet	4 wk	reproductive	1.10	NOAEL	1.10	Peakall, 1974 (in Sample, et al., 1996)	1.1
Carbazole	mouse	0.03	oral in food (intermediate)	19-29 days	reproductive	133.3	NOAEL	133.3	ATSDR, 1995b	133.3
Chrysene	mouse	0.03	oral in food (intermediate)	30-197 days	cancer	1.30	NOAEL	1.30	ATSDR, 1995b	1.3
Cyclohexanone	NA									NA
Dibenz(a,h)anthracene	mouse	0.03	oral in food (intermediate)	30-197 days	cancer	1.30	NOAEL	1.30	ATSDR, 1995b	1.3
Fluoranthene	mouse	0.03	oral gavage (intermediate)	13 wk	hepatic	125	NOAEL	125	EPA, 1988e (in ATSDR, 1995b)	125
Fluorene	See LMW PAHs									NA
Indeno(1,2,3-cd)pyrene	mouse	0.03	oral in food (intermediate)	30-197 days	cancer	1.30	NOAEL	1.30	ATSDR, 1995b	1.3
Naphthalene	See LMW PAHs									NA
N-nitrosodiphenylamine	rat	0.35	oral in food (intermediate)	8-11 wk	systemic	150	NOAEL	150	ATSDR, 1993	150
Phenanthrene	See LMW PAHs									NA
Phenol	rat	0.35	oral in food (intermediate)	13 wk	reproductive	1566.0	NOAEL	1694.0	NCI, 1980 (in ATSDR, 1998)	1694
Pyrene	mouse	0.03	oral in food (intermediate)	19-29 days	reproductive	133.3	NOAEL	133.3	ATSDR, 1995b	133.3
Low Molecular Weight PAHs ⁸	mallard	1.00	oral	7 mo	hepatic	400.0	LOAEL	40.0	Patton & Dieter, 1980	40
Pesticides/PCBs										
4,4'-DDD	mouse	0.03	oral in food (chronic)	130 wk	cancer	42.6	LOAEL	4.26	Tomatis, et al., 1974 (in ATSDR, 2002)	4.3
4,4'-DDE	mouse	0.03	oral in food (chronic)	78 wk	cancer	27	LOAEL	2.7	NCI, 1978 (in ATSDR, 1994)	2.7
4,4'-DDT	brown pelican	3.50	oral in diet (chronic)	5 yr	reproductive	0.03	LOAEL	0.003	Anderson, et al., 1975 (in Sample, et al., 1996)	0.0028
alpha-Chlordane	red-winged blackbird	0.06	oral in diet (chronic)	84 d	mortality	2.14	NOAEL	2.14	Stickel, et al., 1983 (in Sample, et al., 1996)	2.14
gamma-Chlordane	red-winged blackbird	0.06	oral in diet (chronic)	84 d	mortality	2.14	NOAEL	2.14	Stickel, et al., 1983 (in Sample, et al., 1996)	2.14

TABLE 4
TOXICITY REFERENCE VALUES FOR MALLARD (CONTINUED)
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV (mg/kg - d) ⁵	Test TRV Type	NOAEL ⁶	Source ⁷	Wildlife TRV (mg/kg-d) ⁸
Metals										
Aluminum	ringed dove	0.16	oral in diet (chronic)	4 months	reproductive	109.7	NOAEL	109.7	Carriere, et al., 1986 (in Sample, et al., 1996)	109.7
Antimony	mouse	0.03	oral in water (chronic)	lifetime, >1 year	lifespan	1.25	LOAEL	0.125	Schroeder et al. 1968b (in Sample et al., 1996)	0.1
Arsenic	mallard	1.00	oral in diet (chronic)	128 d	mortality	5.14	NOAEL	5.14	USFWS, 1964 (in Sample, et al., 1996)	5.1
Barium	1-day old chickens	0.121	oral in diet (subchronic)	4 wk	mortality	208	NOAEL	208	Johnson, et al., 1960 (in Sample, et al., 1996)	208.0
Beryllium	rat	0.35	oral in water (chronic)	lifetime, >1 year	longevity	0.66	NOAEL	0.66	Schroeder & Mitchner, 1975 (in Sample et al., 1996)	0.7
Cadmium	mallard	1.15	oral in diet (chronic)	90 d	reproductive	1.5	NOAEL	1.5	White & Finley, 1978 (in Sample, et al., 1996)	1.5
Chromium	black duck	1.25	oral in diet (chronic)	10 mo	reproductive	1.0	NOAEL	1.0	Haseltine, et al., unpubl. (in Sample, et al., 1996)	1.0
Cobalt	avian herbivore	NA	oral in diet	NA	reproductive	7.61	NOAEL	7.61	ECO-SSL, USEPA 2003	7.6
Copper	1-day old chickens	0.5	oral in diet (chronic)	10 wk	mortality	47.0	NOAEL	47.0	Mehring, et al., 1960 (in Sample, et al., 1996)	47.0
Iron	NA									NA
Lead	Japanese quail	0.15	oral in diet (chronic)	12 wk	reproductive	1.1	NOAEL	1.1	Edens, et al., 1976 (in Sample, et al., 1996)	1.1
Manganese	1-day old J. quail	0.072	oral in diet (chronic)	75 d	growth	977	NOAEL	977	Laskey & Edens, 1985 (in Sample, et al., 1996)	977.0
Mercury	mallard	1	oral in diet (chronic)	3 gen	reproductive	0.064	LOAEL	0.0064	Heinz, 1979 (in Sample, et al., 1996)	0.0
Nickel	mallard	0.782	oral in diet (chronic)	90 d	mortality	77.4	NOAEL	77.4	Caill & Palford, 1981 (in Sample, et al., 1996)	77.4
Selenium	mallard	1	oral in diet (chronic)	100 d	reproductive	0.4	NOAEL	0.4	Heinz, et al., 1989 (in Sample, et al., 1996)	0.4
Silver	rat	0.35	oral in water (acute)	2 wk	mortality	181.2	NOAEL	181.2	Walker, 1971 (in ATSDR, 1990)	181.2
Thallium	rat	0.37	oral in water (subchronic)	60 d	reproductive	0.74	LOAEL	0.074	Formigli et al., 1986 (in Sample et al., 1996)	0.1
Vanadium	mallard	1.17	oral in diet (chronic)	12 wk	mortality	11.4	NOAEL	11.4	White & Dieter, 1978 (in Sample, et al., 1996)	11.4
Zinc	white leg-horn	1.94	oral in diet (chronic)	44 wk	reproductive	15	NOAEL	15	Stahl, et al., 1990 (in Sample, et al., 1996)	14.5
Chromium VI	NA									NA

Notes:

d - day(s)

wk - week(s)

mo - month(s)

yr -year(s)

gen - generations

COPC - Chemical of Potential Concern

TRV - Toxicity Reference Value

NOAEL - No Observed Adverse Effect Level

LOAEL - Lowest Observed Adverse Effect Level

NA - Not Available

1 COPC or COPC and analyte/compound used in toxicological testing.

2 Body weight for mouse and rat based on USEPA 1985b (cited in Sample, et al., 1996), other body weights are actual body weights of animals used in test.

3 Lowest non-carcinogenic NOAEL from PAH toxicological data summarized in ATSDR, 1995; test used benzo(a)pyrene. USEPA has indicated that acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, phenanthrene and pyrene are not classifiable as carcinogens (ATSDR, 1995). Carbazole was included in this group for the development of HQs.

4 Lowest carcinogenic LOAEL from PAH toxicological data summarized in ATSDR, 1995; test used benzo(a)pyrene. USEPA has classified benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene as carcinogens (ATSDR, 1995).

5 TRVs for studies in which dose was administered five times per week were multiplied for a factor of 0.7.

6 LOAELs were divided by an uncertainty factor of 10 to obtain NOAELs.

7 Test NOAELs were adjusted for wildlife species body weight using the following equation: NOAELwildlife = NOAELtest * (BW test/BW wildlife) ^ 0.25 (Sample, et al., 1996).

TABLE 5
TOXICITY REFERENCE VALUES FOR SHREW
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV (mg/kg - d) ⁵	Test TRV Type	NOAEL ⁶	Source ⁷	Wildlife TRV (mg/kg-d) ⁸
Volatile Organics										
1,1-Dichloroethane	rat	0.35	oral (intermediate)	78 wk	systemic	764	NOAEL	764	NCI, 1977 (in ATSDR, 1990)	1679.1
2-Butanone	rat	0.35	oral gavage (intermediate)	13 wk	neurological	121	LOAEL	12.1	Ralston, et al., 1985 (in ATSDR, 1992)	26.6
Acetone	rat	0.35	oral in water (intermediate)	13 wk	reproductive	1700	NOAEL	1700	NTP, 1991 (in ATSDR, 1994)	3736.3
Benzene	mouse	0.03	oral gavage	6-12 d	reproductive	263.6	LOAEL	26.36	Nawrot & Staples, 1979 (in Sample, et al., 1996)	31.3
Carbon Disulfide	rat	0.35	oral (intermediate)	4 wk	cardiovascular	253	LOAEL	126	Hoffmann & Klapperstuck, 1990 (in ATSDR, 1996)	276.9
Vinyl Chloride	rat	0.35	oral in diet	144 wk	mortality	1.7	LOAEL	0.17	Feron, et al., 1981 (in Sample, et al., 1996)	0.4
Xylene, m/p-	mouse	0.03	oral gavage	6-12 d	reproductive	2.1	NOAEL	2.1	Marks, et al., 1982 (in ATSDR, 1995)	2.5
Xylene, o-	mouse	0.03	oral gavage	6-12 d	reproductive	2.1	NOAEL	2.1	Marks, et al., 1982 (in ATSDR, 1995)	2.5
Semivolatile Organics										
2-Methylphenol	NA									NA
Acenaphthene	mouse	0.03	oral gavage (intermediate)	13 wk	reproductive	350.0	NOAEL	350.0	EPA, 1989c (in ATSDR, 1995)	416.2
Acenaphthylene ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995	158.5
Anthracene ³	mouse	0.03	oral gavage (intermediate)	13 wk	reproductive	1000	NOAEL	1000	EPA, 1989d (in ATSDR, 1995)	1189.2
Benzo(a)anthracene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	ATSDR, 1995	1.5
Benzo(a)pyrene	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	Neal & Riddon, 1967 (in ATSDR, 1995)	1.5
Benzo(b)fluoranthene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	ATSDR, 1995	1.5
Benzo(g,h,i)perylene ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995	158.5
Benzo(k)fluoranthene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	ATSDR, 1995	1.5
Benzoic acid	rat	0.35	oral in food	4 gen	growth, organ weight	500	NOAEL	500	Kieckebusch & Lang, 1060 (in WHO, 2000)	1099
bis(2-Ethylhexyl)phthalate	mouse	0.03	oral in diet	105 d	reproductive	183.30	LOAEL	18.33	Lamb, et al., 1987 (in Sample, et al., 1996)	21.8
Carbazole ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995	158.5
Chrysene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	ATSDR, 1995	1.5
Cyclohexanone	NA									NA
Dibenz(a,h)anthracene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	ATSDR, 1995	1.5
Fluoranthene ³	mouse	0.03	oral gavage (intermediate)	13 wk	hepatic	125	NOAEL	125	EPA, 1988e (in ATSDR, 1995)	148.7
Fluorene ³	mouse	0.03	oral gavage (intermediate)	13 wk	hematological	125	NOAEL	125	EPA, 1988e (in ATSDR, 1995)	148.7
Indeno(1,2,3-cd)pyrene ⁴	mouse	0.03	oral in food (intermediate)	30-197 d	cancer	1.30	NOAEL	1.30	ATSDR, 1995	1.5
Naphthalene	mouse	0.03	oral gavage (intermediate)	13 wk	reproductive	200	NOAEL	200	NTP, 1980a (ATSDR, 2003)	237.8
N-nitrosodiphenylamine	rat	0.35	oral in food (intermediate)	8-11 wk	systemic	150	NOAEL	150	ATSDR, 1993	329.7
Phenanthrene ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995	158.5
Phenol	rat	0.35	oral in food (intermediate)	13 wk	reproductive	1566.0	NOAEL	1694.0	NCI, 1980 (in ATSDR, 1998)	3723.1
Pyrene ³	mouse	0.03	oral in food (intermediate)	19-29 d	reproductive	133.3	NOAEL	133.3	ATSDR, 1995	158.5
Pesticides/PCBs										
4,4'-DDD	mouse	0.03	oral in food (chronic)	130 wk	cancer	42.6	LOAEL	4.26	Tomatis, et al., 1974 (in ATSDR, 2002)	5.1
4,4'-DDE	mouse	0.03	oral in food (chronic)	78 wk	cancer	27	LOAEL	2.7	NCI, 1978 (in ATSDR, 1994)	3.2
4,4'-DDT	rat	0.35	oral in diet (chronic)	2 year	reproductive	0.80	NOAEL	0.80	Fitzhugh, 1948 (in Sample, et al., 1996)	1.8
alpha-Chlordane	mouse	0.03	oral in diet (chronic)	6 gen	reproductive	4.58	NOAEL	4.58	WHO, 1984 (in Sample, et al., 1996)	5.4
gamma-Chlordane	mouse	0.03	oral in diet (chronic)	6 gen	reproductive	4.60	NOAEL	4.58	WHO, 1984 (in Sample, et al., 1996)	5.4

TABLE 5
TOXICITY REFERENCE VALUES FOR SHREW (CONTINUED)
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV (mg/kg - d) ⁵	Test TRV Type	NOAEL ⁶	Source ⁷	Wildlife RTV (mg/kg-d) ⁸
Metals										
Aluminum	mouse	0.03	oral in water (chronic)	390 d	reproductive	49	NOAEL	49	Ondreicka, et al., 1966 (in Sample, et al., 1996)	58.3
Antimony	mouse	0.03	oral in water (chronic)	lifetime, >1 yr	lifespan	1.25	LOAEL	0.125	Schroeder, et al., 1968b (in Sample, et al., 1996)	0.1
Arsenic	mouse	0.03	oral in water (chronic)	3 gen	reproductive	1.26	LOAEL	0.126	Schroeder & Mitchner, 1971 (in Sample, et al., 1996)	0.1
Barium	rat	0.435	oral in water (chronic)	16 mo	growth	5.1	NOAEL	5.1	Perry, et al., 1983 (in Sample, et al., 1996)	11.8
Beryllium	rat	0.35	oral in water (chronic)	lifetime, >1 yr	longevity	0.66	NOAEL	0.66	Schroeder & Mitchner, 1975 (in Sample, et al., 1996)	1.5
Cadmium	rat	0.30	oral gavage (chronic)	6 wk	reproductive	1.0	NOAEL	1.0	Sutou, et al., 1980b (in Sample, et al., 1996)	2.1
Chromium	rat	0.35	oral in food (subchronic)	20 wk	systemic	9	NOAEL	9	Anderson, et al., 1997b (in ATSDR, 2000)	19.8
Cobalt	rat	0.35	oral in food (intermediate)	69 d	reproductive	5	NOAEL	5	Nation, et al., 1985 (in ATSDR, 1992)	11.0
Copper	mink	1.0	oral in diet (chronic)	357 d	reproductive	11.7	NOAEL	11.7	Aulerich, et al., 1982 (in Sample, et al., 1996)	33.4
Iron	NA									NA
Lead	rat	0.35	oral in diet (chronic)	3 gen	reproductive	8.0	NOAEL	8.0	Azar, et al., 1973 (in Sample, et al., 1996)	17.6
Manganese	rat	0.35	oral in diet (chronic)	224 d	reproductive	88	NOAEL	88	Laskey, et al., 1982 (in Sample, et al., 1996)	193.4
Mercury	rat	0.35	oral in diet (chronic)	3 gen	reproductive	0.032	NOAEL	0.032	Verschuur, et al., 1976 (in Sample, et al., 1996)	0.1
Nickel	rat	0.35	oral in diet (chronic)	3 gen	reproductive	40	NOAEL	40	Ambrose, et al., 1976 (in Sample, et al., 1996)	87.9
Selenium	rat	0.35	oral in water (chronic)	1 yr	reproductive	0.2	NOAEL	0.2	Rosenfeld & Beath, 1954 (in Sample, et al., 1996)	0.4
Silver	rat	0.35	oral in water (acute)	2 wk	mortality	181.2	NOAEL	181.2	Walker, 1971 (in ATSDR, 1990)	398.2
Thallium	rat	0.37	oral in water (subchronic)	60 d	reproductive	0.74	LOAEL	0.074	Formigli, et al., 1986 (in Sample, et al., 1996)	0.164
Vanadium	rat	0.26	oral intubation (chronic)	60 d +	reproductive	2.1	LOAEL	0.21	Domingo, et al., 1986 (in Sample, et al., 1996)	0.4
Zinc	rat	0.35	oral in diet (chronic)	d 1-16 of gestation	reproductive	160	NOAEL	160	Schlicker & Cox, 1968 (in Sample, et al., 1996)	351.7
Chromium VI	rat	0.35	oral in water	1 yr	body weight	3.28	NOAEL	3.28	MacKenzie, et al., 1958 (in Sample, et al., 1996)	7.21

Notes:

d - day(s)

wk - week(s)

mo - month(s)

yr - year(s)

gen - generations

COPC - Chemical of Potential Concern

TRV - Toxicity Reference Value

NOAEL - No Observed Adverse Effect Level

LOAEL - Lowest Observed Adverse Effect Level

NA - Not Available

1 COPC or COPC and analyte/compound used in toxicological testing.

2 Body weight for mouse and rat based on USEPA 1985b (cited in Sample, et al., 1996), other body weights are actual body weights of animals used in test.

3 Lowest non-carcinogenic NOAEL from PAH toxicological data summarized in ATSDR, 1995; test used benzo(a)pyrene. USEPA has indicated that acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, phenanthrene and pyrene are not

classifiable as carcinogens (ATSDR, 1995). Carbazole was included in this group for the development of HQs.

4 Lowest carcinogenic LOAEL from PAH toxicological data summarized in ATSDR, 1995; test used benzo(a)pyrene. USEPA has classified benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene as carcinogens (ATSDR, 1995).

5 TRVs for studies in which dose was administered five times per week were multiplied for a factor of 0.7.

6 LOAELs were divided by an uncertainty factor of 10 to obtain NOAELs.

7 Test NOAELs were adjusted for wildlife species body weight using the following equation: NOAELwildlife = NOAELtest * (BW test/BW wildlife) ^ 0.25 (Sample, et al., 1996).

APPENDIX 7C.5

WILDLIFE RECEPTORS - FOOD CHAIN MODELS - MAXIMUM CASE

**Tables 1 to 27 - Hazard Quotient Summary Tables
Tables 28 to 54 - Calculation Tables**

TABLE 1
HAZARD QUOTIENTS FOR MUSKRAT - STATION AR
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	NA	614	NA	NA	NA	NA	NA
2-Butanone	NA	9.7	NA	NA	NA	NA	NA
Acetone	NA	1367	NA	NA	NA	NA	NA
Benzene	NA	11	NA	NA	NA	NA	NA
Carbon Disulfide	NA	101	NA	NA	NA	NA	NA
Vinyl Chloride	NA	0.14	NA	NA	NA	NA	NA
Xylene, m/p-	NA	0.91	NA	NA	NA	NA	NA
Xylene, o-	NA	0.91	NA	NA	NA	NA	NA
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.00084	152	<0.1	100.0	NA	NA	NA
Acenaphthylene	0.000089	58	<0.1	100.0	NA	NA	NA
Anthracene	0.00069	435	<0.1	100.0	NA	NA	NA
Benzo(a)anthracene	0.0018	0.57	<0.1	100.0	NA	NA	NA
Benzo(a)pyrene	0.00075	0.57	<0.1	100.0	NA	NA	NA
Benzo(b)fluoranthene	0.0022	0.57	<0.1	100.0	NA	NA	NA
Benzo(g,h,i)perylene	0.0010	58	<0.1	100.0	NA	NA	NA
Benzo(k)fluoranthene	0.00057	0.57	<0.1	100.0	NA	NA	NA
Benzoic acid	NA	402	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	8.0	NA	NA	NA	NA	NA
Carbazole	NA	58	NA	NA	NA	NA	NA
Chrysene	0.0039	0.57	<0.1	100.0	NA	NA	NA
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.00013	0.57	<0.1	100.0	NA	NA	NA
Fluoranthene	0.013	54	<0.1	100.0	NA	NA	NA
Fluorene	0.00086	54	<0.1	100.0	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0010	0.57	<0.1	100.0	NA	NA	NA
Naphthalene	0.00063	87	<0.1	100.0	NA	NA	NA
N-nitrosodiphenylamine	NA	121	NA	NA	NA	NA	NA
Phenanthrene	0.0054	58	<0.1	100.0	NA	NA	NA
Phenol	NA	1362	NA	NA	NA	NA	NA
Pyrene	0.0092	58	<0.1	100.0	NA	NA	NA
HAZARD INDEX			0.0				
Pesticides and PCBs							
4,4'-DDD	NA	1.9	NA	NA	NA	NA	NA
4,4'-DDE	NA	1.2	NA	NA	NA	NA	NA
4,4'-DDT	NA	0.64	NA	NA	NA	NA	NA
alpha-Chlordane	NA	2.0	NA	NA	NA	NA	NA
gamma-Chlordane	NA	2.0	NA	NA	NA	NA	NA
HAZARD INDEX			0.0				
Inorganics							
X Aluminum	478	42	11	1.9	88.4	9.8	0.0
X Antimony	0.51	0.054	9	1.5	89.2	9.3	0.0
X Arsenic	124	1.6	77	0.6	97.7	1.7	0.0
X Barium	7.0	4.3	2	4.7	92.8	2.5	0.1
X Beryllium	0.27	0.53	0.5	5.5	92.9	1.6	0.0
X Cadmium	2.0	0.78	3	0.8	97.8	1.4	0.0
X Chromium	18	7.2	2	2.7	82.5	14.8	0.0
X Cobalt	22	4.0	6	0.7	99.1	0.2	0.0
X Copper	28	12	2	2.8	84.1	13.1	0.0
Iron	8733	NA	NA	NA	NA	NA	NA
X Lead	18	6.4	3	2.1	90.7	7.1	0.0
X Manganese	123	71	2	1.1	98.0	0.8	0.1
Mercury	0.033	0.026	1	4.5	75.7	19.8	0.0
Nickel	8.3	32	0.3	1.8	97.4	0.7	0.0
X Selenium	0.35	0.16	2	2.2	84.2	13.5	0.1
Silver	1.7	146	<0.1	0.4	97.0	2.5	0.0
X Thallium	0.54	0.060	9	5.5	92.9	1.6	0.0
X Vanadium	2.0	0.16	13	1.5	91.8	6.7	0.0
Zinc	1216	129	9	0.4	99.3	0.4	0.0
Chromium VI	0.028	2.6	<0.1	NA	NA	100.0	NA
HAZARD INDEX			152				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

SVOCs were not analyzed in sediment.

TABLE 2
HAZARD QUOTIENTS FOR MUSKRAT - STATION BE-1
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	NA	614	NA	NA	NA	NA	NA
2-Butanone	NA	9.7	NA	NA	NA	NA	NA
Acetone	NA	1367	NA	NA	NA	NA	NA
Benzene	NA	11	NA	NA	NA	NA	NA
Carbon Disulfide	NA	101	NA	NA	NA	NA	NA
Vinyl Chloride	NA	0.14	NA	NA	NA	NA	NA
Xylene, m/p-	NA	0.91	NA	NA	NA	NA	NA
Xylene, o-	NA	0.91	NA	NA	NA	NA	NA
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.00084	152	<0.1	100.0	NA	NA	NA
Acenaphthylene	0.000089	58	<0.1	100.0	NA	NA	NA
Anthracene	0.00069	435	<0.1	100.0	NA	NA	NA
Benzo(a)anthracene	0.0018	0.57	<0.1	100.0	NA	NA	NA
Benzo(a)pyrene	0.00075	0.57	<0.1	100.0	NA	NA	NA
Benzo(b)fluoranthene	0.0022	0.57	<0.1	100.0	NA	NA	NA
Benzo(g,h,i)perylene	0.0010	58	<0.1	100.0	NA	NA	NA
Benzo(k)fluoranthene	0.00057	0.57	<0.1	100.0	NA	NA	NA
Benzoic acid	NA	402	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	8.0	NA	NA	NA	NA	NA
Carbazole	NA	58	NA	NA	NA	NA	NA
Chrysene	0.0039	0.57	<0.1	100.0	NA	NA	NA
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.00013	0.57	<0.1	100.0	NA	NA	NA
Fluoranthene	0.013	54	<0.1	100.0	NA	NA	NA
Fluorene	0.00086	54	<0.1	100.0	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0010	0.57	<0.1	100.0	NA	NA	NA
Naphthalene	0.00063	87	<0.1	100.0	NA	NA	NA
N-nitrosodiphenylamine	NA	121	NA	NA	NA	NA	NA
Phenanthrene	0.0054	58	<0.1	100.0	NA	NA	NA
Phenol	NA	1362	NA	NA	NA	NA	NA
Pyrene	0.0092	58	<0.1	100.0	NA	NA	NA
HAZARD INDEX			0.0				
Pesticides and PCBs							
4,4'-DDD	NA	1.9	NA	NA	NA	NA	NA
4,4'-DDE	NA	1.2	NA	NA	NA	NA	NA
4,4'-DDT	NA	0.64	NA	NA	NA	NA	NA
alpha-Chlordane	NA	2.0	NA	NA	NA	NA	NA
gamma-Chlordane	NA	2.0	NA	NA	NA	NA	NA
HAZARD INDEX			0.0				
Inorganics							
X Aluminum	448	42	11	2.0	94.2	3.8	NA
X Antimony	0.47	0.054	9	1.6	97.9	0.6	NA
X Arsenic	122	1.6	76	0.6	99.3	0.1	NA
X Barium	7.0	4.3	2	4.7	93.2	2.1	NA
X Beryllium	0.27	0.53	0.5	5.6	94.1	0.4	NA
X Cadmium	2.0	0.78	3	0.9	98.9	0.2	NA
X Chromium	15	7.2	2	3.2	96.3	0.5	NA
X Cobalt	22	4.0	6	0.7	99.3	0.1	NA
X Copper	25	12	2	3.2	96.0	0.8	NA
X Iron	8671	NA	NA	NA	NA	NA	NA
X Lead	17	6.4	3	2.2	95.8	1.9	NA
X Manganese	122	71	2	1.1	98.5	0.3	NA
X Mercury	0.027	0.026	1	5.5	92.8	1.6	NA
X Nickel	8.2	32	0.3	1.8	97.7	0.5	NA
X Selenium	0.31	0.16	2	2.4	95.4	2.1	NA
X Silver	1.7	146	<0.1	0.4	98.8	0.7	NA
X Thallium	0.54	0.060	9	5.6	93.9	0.5	NA
X Vanadium	2.0	0.16	13	1.5	94.8	3.6	NA
X Zinc	1213	129	9	0.4	99.5	0.1	NA
Chromium VI	0.00088	2.6	<0.1	NA	NA	100.0	NA
HAZARD INDEX			148				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

SVOCs were not analyzed in sediment.

TABLE 3
HAZARD QUOTIENTS FOR MUSKRAT - STATION BE-2
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	NA	614	NA	NA	NA	NA	NA
2-Butanone	NA	9.7	NA	NA	NA	NA	NA
Acetone	NA	1367	NA	NA	NA	NA	NA
Benzene	NA	11	NA	NA	NA	NA	NA
Carbon Disulfide	NA	101	NA	NA	NA	NA	NA
Vinyl Chloride	NA	0.14	NA	NA	NA	NA	NA
Xylene, m/p-	NA	0.91	NA	NA	NA	NA	NA
Xylene, o-	NA	0.91	NA	NA	NA	NA	NA
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.00084	152	<0.1	100.0	NA	NA	NA
Acenaphthylene	0.000089	58	<0.1	100.0	NA	NA	NA
Anthracene	0.00069	435	<0.1	100.0	NA	NA	NA
Benz(a)anthracene	0.0018	0.57	<0.1	100.0	NA	NA	NA
Benzo(a)pyrene	0.00075	0.57	<0.1	100.0	NA	NA	NA
Benzo(b)fluoranthene	0.0022	0.57	<0.1	100.0	NA	NA	NA
Benzo(g,h,i)perylene	0.0010	58	<0.1	100.0	NA	NA	NA
Benzo(k)fluoranthene	0.00057	0.57	<0.1	100.0	NA	NA	NA
Benzoic acid	NA	402	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	8.0	NA	NA	NA	NA	NA
Carbazole	NA	58	NA	NA	NA	NA	NA
Chrysene	0.0039	0.57	<0.1	100.0	NA	NA	NA
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.00013	0.57	<0.1	100.0	NA	NA	NA
Fluoranthene	0.013	54	<0.1	100.0	NA	NA	NA
Fluorene	0.00086	54	<0.1	100.0	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0010	0.57	<0.1	100.0	NA	NA	NA
Naphthalene	0.00063	87	<0.1	100.0	NA	NA	NA
N-nitrosodiphenylamine	NA	121	NA	NA	NA	NA	NA
Phenanthrene	0.0054	58	<0.1	100.0	NA	NA	NA
Phenol	NA	1362	NA	NA	NA	NA	NA
Pyrene	0.0092	58	<0.1	100.0	NA	NA	NA
HAZARD INDEX			0.0				
Pesticides and PCBs							
4,4'-DDD	NA	1.9	NA	NA	NA	NA	NA
4,4'-DDE	NA	1.2	NA	NA	NA	NA	NA
4,4'-DDT	NA	0.64	NA	NA	NA	NA	NA
alpha-Chlordane	NA	2.0	NA	NA	NA	NA	NA
gamma-Chlordane	NA	2.0	NA	NA	NA	NA	NA
HAZARD INDEX			0.0				
Inorganics							
X Aluminum	467	42	11	1.9	90.5	7.6	NA
X Antimony	0.47	0.054	9	1.6	96.9	1.5	NA
X Arsenic	122	1.6	76	0.6	98.6	0.7	NA
X Barium	7.1	4.3	2	4.7	92.7	2.6	NA
X Beryllium	0.27	0.53	0.5	5.6	93.7	0.8	NA
X Cadmium	2.0	0.78	3	0.9	98.6	0.6	NA
X Chromium	15	7.2	2	3.1	95.7	1.1	NA
X Cobalt	22	4.0	6	0.7	99.0	0.3	NA
X Copper	25	12	2	3.1	94.9	1.9	NA
Iron	8776	NA	NA	NA	NA	NA	NA
X Lead	17	6.4	3	2.2	95.1	2.7	NA
X Manganese	124	71	2	1.1	97.6	1.2	NA
Mercury	0.028	0.026	1	5.4	91.3	3.2	NA
Nickel	8.3	32	0.3	1.8	97.4	0.8	NA
X Selenium	0.31	0.16	2	2.4	94.5	3.0	NA
Silver	1.7	146	<0.1	0.4	99.4	0.2	NA
X Thallium	0.54	0.060	9	5.5	93.3	1.2	NA
X Vanadium	2.1	0.16	13	1.4	89.6	8.9	NA
Zinc	1219	129	9	0.4	99.0	0.6	NA
Chromium VI	0.0019	2.6	<0.1	NA	NA	100.0	NA
HAZARD INDEX			150				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

SVOCs were not analyzed in sediment.

TABLE 4
HAZARD QUOTIENTS FOR MUSKRAT - STATION BE-3
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	NA	614	NA	NA	NA	NA	NA
2-Butanone	NA	9.7	NA	NA	NA	NA	NA
Acetone	NA	1367	NA	NA	NA	NA	NA
Benzene	NA	11	NA	NA	NA	NA	NA
Carbon Disulfide	NA	101	NA	NA	NA	NA	NA
Vinyl Chloride	NA	0.14	NA	NA	NA	NA	NA
Xylene, m/p-	NA	0.91	NA	NA	NA	NA	NA
Xylene, o-	NA	0.91	NA	NA	NA	NA	NA
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.00084	152	<0.1	100.0	NA	NA	NA
Acenaphthylene	0.000089	58	<0.1	100.0	NA	NA	NA
Anthracene	0.00069	435	<0.1	100.0	NA	NA	NA
Benz(a)anthracene	0.0018	0.57	<0.1	100.0	NA	NA	NA
Benzo(a)pyrene	0.00075	0.57	<0.1	100.0	NA	NA	NA
Benzo(b)fluoranthene	0.0022	0.57	<0.1	100.0	NA	NA	NA
Benzo(g,h,i)perylene	0.0010	58	<0.1	100.0	NA	NA	NA
Benzo(k)fluoranthene	0.00057	0.57	<0.1	100.0	NA	NA	NA
Benzoic acid	NA	402	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	8.0	NA	NA	NA	NA	NA
Carbazole	NA	58	NA	NA	NA	NA	NA
Chrysene	0.0039	0.57	<0.1	100.0	NA	NA	NA
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.00013	0.57	<0.1	100.0	NA	NA	NA
Fluoranthene	0.013	54	<0.1	100.0	NA	NA	NA
Fluorene	0.00086	54	<0.1	100.0	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0010	0.57	<0.1	100.0	NA	NA	NA
Naphthalene	0.00063	87	<0.1	100.0	NA	NA	NA
N-nitrosodiphenylamine	NA	121	NA	NA	NA	NA	NA
Phenanthrene	0.0054	58	<0.1	100.0	NA	NA	NA
Phenol	NA	1362	NA	NA	NA	NA	NA
Pyrene	0.0092	58	<0.1	100.0	NA	NA	NA
HAZARD INDEX			0.0				
Pesticides and PCBs							
4,4'-DDD	NA	1.9	NA	NA	NA	NA	NA
4,4'-DDE	NA	1.2	NA	NA	NA	NA	NA
4,4'-DDT	NA	0.64	NA	NA	NA	NA	NA
alpha-Chlordane	NA	2.0	NA	NA	NA	NA	NA
gamma-Chlordane	NA	2.0	NA	NA	NA	NA	NA
HAZARD INDEX			0.0				
Inorganics							
X Aluminum	455	42	11	2.0	92.8	5.2	NA
X Antimony	0.47	0.054	9	1.6	97.7	0.8	NA
X Arsenic	122	1.6	76	0.6	99.2	0.2	NA
X Barium	7.0	4.3	2	4.7	93.1	2.2	NA
X Beryllium	0.27	0.53	0.5	5.6	93.9	0.5	NA
X Cadmium	2.0	0.78	3	0.9	98.8	0.4	NA
X Chromium	15	7.2	2	3.1	96.1	0.7	NA
X Cobalt	22	4.0	6	0.7	99.1	0.2	NA
X Copper	25	12	2	3.2	96.0	0.8	NA
X Iron	8699	NA	NA	NA	NA	NA	NA
X Lead	17	6.4	3	2.2	95.6	2.2	NA
X Manganese	123	71	2	1.1	98.2	0.7	NA
X Mercury	0.028	0.026	1	5.4	91.2	3.4	NA
X Nickel	8.3	32	0.3	1.8	97.4	0.7	NA
X Selenium	0.30	0.16	2	2.5	96.2	1.4	NA
X Silver	1.7	146	<0.1	0.4	99.4	0.2	NA
X Thallium	0.54	0.060	9	5.6	93.8	0.7	NA
X Vanadium	2.0	0.16	13	1.5	93.7	4.8	NA
X Zinc	1213	129	9	0.4	99.5	0.1	NA
X Chromium VI	0.0011	2.6	<0.1	NA	NA	100.0	NA
HAZARD INDEX			148				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

SVOCs were not analyzed in sediment.

TABLE 5
HAZARD QUOTIENTS FOR MUSKRAT - STATION HBHA POND
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.00016	614	<0.1	NA	NA	38.5	61.5
2-Butanone	0.00011	9.7	<0.1	NA	NA	6.5	93.5
Acetone	0.00032	1367	<0.1	NA	NA	22.4	77.6
Benzene	0.00011	11	<0.1	NA	NA	6.5	93.5
Carbon Disulfide	0.00014	101	<0.1	NA	NA	28.3	71.7
Vinyl Chloride	0.00011	0.14	<0.1	NA	NA	6.5	93.5
Xylene, m/p-	0.00022	0.91	<0.1	NA	NA	7.0	93.0
Xylene, o-	0.00011	0.91	<0.1	NA	NA	6.5	93.5
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	0.00096	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0011	152	<0.1	9.8	NA	33.1	57.0
Acenaphthylene	0.00090	58	<0.1	11.6	NA	20.9	67.5
Anthracene	0.0015	435	<0.1	18.1	NA	41.1	40.8
Benzo(a)anthracene	0.0043	0.57	<0.1	15.2	NA	70.7	14.1
Benzo(a)pyrene	0.12	0.57	0.2	0.4	96.3	2.8	0.5
Benzo(b)fluoranthene	0.087	0.57	0.2	0.9	92.7	5.7	0.7
Benzo(g,h,i)perylene	0.0028	58	<0.1	14.9	NA	63.5	21.6
Benzo(k)fluoranthene	0.17	0.57	0.3	0.1	97.2	2.3	0.3
Benzoic acid	0.0070	402	<0.1	NA	NA	NA	100.0
bis(2-Ethylhexyl)phthalate	0.087	8.0	<0.1	NA	NA	99.3	0.7
Carbazole	0.00063	58	<0.1	NA	NA	59.8	40.2
Chrysene	0.11	0.57	0.2	0.7	95.0	3.8	0.5
Cyclohexanone	0.029	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0012	0.57	<0.1	8.7	NA	40.9	50.4
Fluoranthene	0.091	54	<0.1	2.1	88.5	8.7	0.7
Fluorene	0.0011	54	<0.1	9.8	NA	33.1	57.0
Indeno(1,2,3-cd)pyrene	0.20	0.57	0.4	0.2	98.4	1.1	0.3
Naphthalene	0.0011	87	<0.1	21.7	NA	23.4	54.9
N-nitrosodiphenylamine	0.0033	121	<0.1	NA	NA	10.6	89.4
Phenanthrene	0.14	58	<0.1	0.5	97.4	1.7	0.4
Phenol	0.0011	1362	<0.1	NA	NA	33.2	66.8
Pyrene	0.088	58	<0.1	1.6	90.8	6.9	0.7
HAZARD INDEX			1				
Pesticides and PCBs							
4,4'-DDD	0.00062	1.9	<0.1	NA	91.7	8.3	0.1
4,4'-DDE	0.000092	1.2	<0.1	NA	89.9	9.6	0.5
4,4'-DDT	0.00032	0.64	<0.1	NA	97.0	2.8	0.1
alpha-Chlordane	0.0050	2.0	<0.1	NA	95.6	4.4	0.0
gamma-Chlordane	0.0047	2.0	<0.1	NA	95.4	4.6	0.0
HAZARD INDEX			0.0				
Inorganics							
X Aluminum	69	42	2	13.0	46.6	40.4	0.0
X Antimony	0.18	0.054	3	4.2	71.4	23.6	0.8
X Arsenic	24	1.6	15	3.2	90.4	6.4	0.0
Barium	3.2	4.3	0.7	10.4	79.5	9.9	0.1
Beryllium	0.27	0.53	0.5	5.5	93.5	1.0	0.0
Cadmium	0.23	0.78	0.3	7.5	55.8	36.6	0.1
Chromium	3.9	7.2	0.5	12.3	40.1	47.6	0.0
Cobalt	2.8	4.0	0.7	5.3	90.1	4.6	0.0
Copper	14	12	1	4.6	62.9	32.6	0.0
Iron	2087	NA	NA	NA	NA	NA	NA
Lead	4.7	6.4	0.7	8.2	58.5	33.3	0.0
X Manganese	108	71	2	1.3	97.9	0.8	0.1
Mercury	0.031	0.026	1	NA	79.9	20.1	0.0
Nickel	2.8	32	<0.1	5.4	91.0	3.6	0.0
Selenium	0.15	0.16	1	4.9	82.0	12.8	0.2
Silver	1.7	146	<0.1	0.4	99.3	0.3	0.0
X Thallium	0.55	0.060	9	5.4	90.7	3.8	0.1
X Vanadium	0.26	0.16	2	11.5	48.6	39.6	0.2
Zinc	73	129	0.6	6.5	52.2	41.3	0.1
Chromium VI	0.020	2.6	<0.1	NA	NA	100.0	NA
X HAZARD INDEX			40				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 6
HAZARD QUOTIENTS FOR MUSKRAT - STATION HBHA WETLAND-08
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.00012	614	<0.1	NA	NA	18.1	81.9
2-Butanone	0.00090	9.7	<0.1	NA	NA	88.8	11.2
Acetone	0.0035	1367	<0.1	NA	NA	92.9	7.1
Benzene	0.00012	11	<0.1	NA	NA	17.3	82.7
Carbon Disulfide	0.00013	101	<0.1	NA	NA	23.2	76.8
Vinyl Chloride	0.00012	0.14	<0.1	NA	NA	18.1	81.9
Xylene, m/p-	0.00025	0.91	<0.1	NA	NA	17.7	82.3
Xylene, o-	0.00012	0.91	<0.1	NA	NA	18.1	81.9
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	0.0011	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0011	152	<0.1	4.2	NA	28.9	66.9
Acenaphthylene	0.0012	58	<0.1	7.5	NA	33.4	59.1
Anthracene	0.0013	435	<0.1	6.8	NA	39.3	53.9
Benzo(a)anthracene	0.0035	0.57	<0.1	6.0	NA	73.8	20.2
Benzo(a)pyrene	0.12	0.57	0.2	0.2	96.4	2.8	0.6
Benzo(b)fluoranthene	0.090	0.57	0.2	0.2	93.3	5.7	0.8
Benzo(g,h,i)perylene	0.0031	58	<0.1	5.8	NA	71.3	22.9
Benzo(k)fluoranthene	0.19	0.57	0.3	0.1	97.3	2.3	0.4
Benzoic acid	0.000091	402	<0.1	NA	NA	NA	100.0
bis(2-Ethylhexyl)phthalate	0.014	8.0	<0.1	NA	NA	16.2	83.8
Carbazole	0.0012	58	<0.1	NA	NA	78.8	21.2
Chrysene	0.14	0.57	0.2	0.3	95.4	3.8	0.5
Cyclohexanone	0.010	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0013	0.57	<0.1	3.5	NA	40.7	55.8
Fluoranthene	0.10	54	<0.1	0.6	90.4	8.9	0.0
Fluorene	0.0013	54	<0.1	3.4	NA	42.8	53.8
Indeno(1,2,3-cd)pyrene	0.26	0.57	0.5	0.1	98.6	1.1	0.3
Naphthalene	0.0013	87	<0.1	9.4	NA	35.0	55.6
N-nitrosodiphenylamine	0.0039	121	<0.1	NA	NA	10.3	89.7
Phenanthrene	0.28	58	<0.1	0.1	98.0	1.7	0.3
Phenol	0.00089	1362	<0.1	NA	NA	31.7	68.3
Pyrene	0.10	58	<0.1	0.5	92.4	7.0	0.0
HAZARD INDEX			1				
Pesticides and PCBs							
4,4'-DDD	0.000013	1.9	<0.1	NA	88.0	7.9	4.0
4,4'-DDE	0.000011	1.2	<0.1	NA	86.1	9.2	4.7
4,4'-DDT	0.000036	0.64	<0.1	NA	95.8	2.8	1.4
alpha-Chlordane	0.000023	2.0	<0.1	NA	93.6	4.3	2.2
gamma-Chlordane	0.000022	2.0	<0.1	NA	93.2	4.5	2.3
HAZARD INDEX			0.0				
Inorganics							
X Aluminum	461	42	11	0.1	91.7	8.1	0.0
X Antimony	0.48	0.054	9	1.5	94.8	3.6	0.1
X Arsenic	124	1.6	77	0.1	97.6	2.3	0.0
X Barium	7.1	4.3	2	2.1	92.4	5.5	0.1
X Beryllium	0.27	0.53	0.5	5.5	92.8	1.7	0.0
X Cadmium	2.1	0.78	3	0.4	94.5	5.1	0.0
X Chromium	16	7.2	2	0.3	91.1	8.7	0.0
X Cobalt	23	4.0	6	0.7	97.9	1.4	0.0
X Copper	26	12	2	0.6	90.3	9.1	0.0
X Iron	9074	NA	NA	NA	NA	NA	NA
X Lead	18	6.4	3	0.1	93.0	6.9	0.0
X Manganese	130	71	2	0.6	93.1	6.3	0.1
X Mercury	0.030	0.026	1	4.9	83.0	12.0	0.1
X Nickel	8.3	32	0.3	1.8	96.7	1.5	0.0
X Selenium	0.31	0.16	2	2.4	94.6	3.0	0.1
X Silver	0.14	146	<0.1	5.4	91.3	3.2	0.0
X Thallium	0.54	0.060	9	5.6	93.9	0.4	0.0
X Vanadium	2.0	0.16	13	0.4	92.5	7.1	0.0
X Zinc	1231	129	10	0.1	98.0	1.9	0.0
Chromium VI	0.015	2.6	<0.1	NA	NA	100.0	NA
HAZARD INDEX			151				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 7
HAZARD QUOTIENTS FOR MUSKRAT - STATION HBHA WETLAND-10
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.00011	614	<0.1	NA	NA	10.4	89.6
2-Butanone	0.00011	9.7	<0.1	NA	NA	10.4	89.6
Acetone	0.00039	1367	<0.1	NA	NA	35.0	65.0
Benzene	0.00011	11	<0.1	NA	NA	10.4	89.6
Carbon Disulfide	0.00011	101	<0.1	NA	NA	10.4	89.6
Vinyl Chloride	0.00011	0.14	<0.1	NA	NA	10.4	89.6
Xylene, m/p-	0.00022	0.91	<0.1	NA	NA	9.9	90.1
Xylene, o-	0.00011	0.91	<0.1	NA	NA	10.4	89.6
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	0.0011	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0019	152	<0.1	43.1	NA	20.5	36.4
Acenaphthylene	0.0012	58	<0.1	7.5	NA	33.4	59.1
Anthracene	0.0018	435	<0.1	38.3	NA	22.2	39.4
Benzo(a)anthracene	0.0035	0.57	<0.1	49.7	NA	30.4	19.9
Benzo(a)pyrene	0.058	0.57	0.1	1.3	94.7	2.8	1.2
Benzo(b)fluoranthene	0.048	0.57	<0.1	4.6	88.5	5.4	1.5
Benzo(g,h,i)perylene	0.0028	58	<0.1	35.6	NA	39.5	24.8
Benzo(k)fluoranthene	0.094	0.57	0.2	0.6	96.4	2.3	0.7
Benzoic acid	0.000091	402	<0.1	NA	NA	NA	100.0
bis(2-Ethylhexyl)phthalate	0.013	8.0	<0.1	NA	NA	9.5	90.5
Carbazole	0.00065	58	<0.1	NA	NA	61.2	38.8
Chrysene	0.063	0.57	0.1	6.1	89.2	3.6	1.1
Cyclohexanone	0.010	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0011	0.57	<0.1	12.2	NA	23.5	64.3
Fluoranthene	0.053	54	<0.1	25.5	67.8	6.7	0.0
Fluorene	0.0020	54	<0.1	43.9	NA	20.2	35.9
Indeno(1,2,3-cd)pyrene	0.12	0.57	0.2	0.8	97.5	1.1	0.6
Naphthalene	0.0017	87	<0.1	36.2	NA	23.0	40.8
N-nitrosodiphenylamine	0.0037	121	<0.1	NA	NA	6.3	93.7
Phenanthrene	0.079	58	<0.1	6.8	90.7	1.6	0.9
Phenol	0.0010	1362	<0.1	NA	NA	39.7	60.3
Pyrene	0.052	58	<0.1	17.7	76.5	5.8	0.0
HAZARD INDEX			0.7				
Pesticides and PCBs							
4,4'-DDD	0.000091	1.9	<0.1	NA	91.2	8.2	0.6
4,4'-DDE	0.000066	1.2	<0.1	NA	89.6	9.6	0.8
4,4'-DDT	0.000035	0.64	<0.1	NA	95.8	2.8	1.4
alpha-Chlordane	0.000023	2.0	<0.1	NA	93.6	4.3	2.2
gamma-Chlordane	0.000022	2.0	<0.1	NA	93.2	4.5	2.3
HAZARD INDEX			0.0				
Inorganics							
X Aluminum	453	42	11	0.2	93.2	6.6	0.0
X Antimony	0.47	0.054	9	1.6	97.2	1.1	0.1
X Arsenic	122	1.6	76	0.2	98.6	1.2	0.0
X Barium	6.9	4.3	2	2.2	94.7	3.0	0.1
X Beryllium	0.27	0.53	0.5	5.6	93.6	0.8	0.0
X Cadmium	2.0	0.78	3	0.4	97.9	1.7	0.0
X Chromium	16	7.2	2	0.4	93.2	6.3	0.0
X Cobalt	22	4.0	6	0.7	98.8	0.6	0.0
X Copper	25	12	2	2.4	93.7	3.9	0.0
Iron	8790	NA	NA	NA	NA	NA	NA
X Lead	17	6.4	3	0.2	98.2	1.6	0.0
X Manganese	130	71	2	0.5	92.6	6.8	0.1
M Mercury	0.031	0.026	1	4.8	81.1	14.0	0.1
N Nickel	8.2	32	0.3	1.8	97.6	0.6	0.0
X Selenium	0.31	0.16	2	2.4	95.1	2.4	0.1
Silver	0.13	146	<0.1	5.6	93.6	0.9	0.0
X Thallium	0.53	0.060	9	5.6	94.3	0.1	0.0
X Vanadium	1.9	0.16	12	0.4	95.9	3.7	0.0
X Zinc	1217	129	9	0.1	99.1	0.8	0.0
Cr Chromium VI	0.0091	2.6	<0.1	NA	NA	100.0	NA
X HAZARD INDEX			149				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 8
HAZARD QUOTIENTS FOR MUSKRAT - STATION HBHA POND 3
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.00012	614	<0.1	NA	NA	14.0	86.0
2-Butanone	0.00012	9.7	<0.1	NA	NA	14.0	86.0
Acetone	0.00079	1367	<0.1	NA	NA	68.1	31.9
Benzene	0.00012	11	<0.1	NA	NA	14.0	86.0
Carbon Disulfide	0.00012	101	<0.1	NA	NA	14.0	86.0
Vinyl Chloride	0.00012	0.14	<0.1	NA	NA	14.0	86.0
Xylene, m/p-	0.00023	0.91	<0.1	NA	NA	13.6	86.4
Xylene, o-	0.00012	0.91	<0.1	NA	NA	14.0	86.0
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	0.0011	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0021	152	<0.1	39.7	NA	26.7	33.6
Acenaphthylene	0.0011	58	<0.1	12.5	NA	21.5	66.0
Anthracene	0.0028	435	<0.1	24.7	NA	49.8	25.5
Benzo(a)anthracene	0.012	0.57	<0.1	14.9	NA	79.2	6.0
Benzo(a)pyrene	0.59	0.57	1	0.1	96.9	2.8	0.1
Benzo(b)fluoranthene	0.41	0.57	0.7	0.5	93.6	5.7	0.2
Benzo(g,h,i)perylene	0.010	58	<0.1	9.8	NA	83.4	6.8
Benzo(k)fluoranthene	0.61	0.57	1	0.1	97.5	2.3	0.1
Benzoic acid	0.000091	402	<0.1	NA	NA	NA	100.0
bis(2-Ethylhexyl)phthalate	0.015	8.0	<0.1	NA	NA	17.6	82.4
Carbazole	0.0025	58	<0.1	NA	NA	90.0	10.0
Chrysene	0.61	0.57	1	0.6	95.4	3.8	0.1
Cyclohexanone	0.010	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0037	0.57	<0.1	3.7	NA	77.0	19.3
Fluoranthene	0.43	54	<0.1	3.1	88.2	8.7	0.0
Fluorene	0.0024	54	<0.1	35.5	NA	35.6	29.0
X Indeno(1,2,3-cd)pyrene	1.1	0.57	2	0.1	98.7	1.1	0.1
Naphthalene	0.0016	87	<0.1	38.8	NA	17.4	43.8
N-nitrosodiphenylamine	0.0039	121	<0.1	NA	NA	10.3	89.7
Phenanthrene	0.97	58	<0.1	0.6	97.7	1.7	0.1
Phenol	0.00099	1362	<0.1	NA	NA	39.0	61.0
Pyrene	0.47	58	<0.1	2.0	91.1	6.9	0.0
X HAZARD INDEX			6				
Pesticides and PCBs							
4,4'-DDD	0.000012	1.9	<0.1	NA	87.9	7.9	4.2
4,4'-DDE	0.000010	1.2	<0.1	NA	85.9	9.2	4.9
4,4'-DDT	0.000034	0.64	<0.1	NA	95.7	2.8	1.5
alpha-Chlordane	0.000022	2.0	<0.1	NA	93.5	4.3	2.3
gamma-Chlordane	0.000021	2.0	<0.1	NA	93.1	4.5	2.4
HAZARD INDEX			0.0				
Inorganics							
X Aluminum	140	42	3	0.7	75.2	24.0	0.0
X Antimony	0.14	0.054	3	5.3	88.6	5.9	0.2
X Arsenic	30	1.6	18	0.4	90.0	9.5	0.0
Barium	3.0	4.3	0.7	5.0	84.6	10.2	0.2
Beryllium	0.27	0.53	0.5	5.5	93.5	1.0	0.0
Cadmium	0.18	0.78	0.2	4.1	68.5	27.4	0.0
Chromium	5.6	7.2	0.8	1.2	72.8	26.0	0.0
Cobalt	2.8	4.0	0.7	5.4	90.8	3.8	0.0
Copper	7.8	12	0.6	1.9	70.6	27.4	0.0
Iron	3559	NA	NA	NA	NA	NA	NA
Lead	3.5	6.4	0.5	0.9	78.6	20.4	0.0
Manganese	97	71	1	0.2	93.1	6.7	0.1
Mercury	0.034	0.026	1	NA	74.3	25.6	0.1
Nickel	2.7	32	<0.1	5.4	91.7	2.9	0.0
Selenium	0.14	0.16	0.9	5.2	87.1	7.6	0.1
Silver	0.14	146	<0.1	5.5	93.0	1.4	0.0
X Thallium	0.53	0.060	9	5.6	94.3	0.1	0.0
X Vanadium	0.59	0.16	4	1.3	79.5	19.1	0.1
Zinc	69	129	0.5	1.1	80.7	18.1	0.0
Chromium VI	0.016	2.6	<0.1	NA	NA	100.0	NA
X HAZARD INDEX			45				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 9
HAZARD QUOTIENTS FOR MUSKRAT - STATION HBHA WETLAND POND
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.00013	614	<0.1	NA	NA	21.8	78.2
2-Butanone	0.00013	9.7	<0.1	NA	NA	21.8	78.2
Acetone	0.0014	1367	<0.1	NA	NA	81.4	18.6
Benzene	0.00020	11	<0.1	NA	NA	48.8	51.2
Carbon Disulfide	0.00013	101	<0.1	NA	NA	21.8	78.2
Vinyl Chloride	0.00013	0.14	<0.1	NA	NA	21.8	78.2
Xylene, m/p-	0.00026	0.91	<0.1	NA	NA	21.4	78.6
Xylene, o-	0.00013	0.91	<0.1	NA	NA	21.8	78.2
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	0.00095	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0010	152	<0.1	4.5	NA	75.3	20.3
Acenaphthylene	0.0010	58	<0.1	4.5	NA	75.3	20.3
Anthracene	0.0010	435	<0.1	8.6	NA	72.0	19.4
Benzo(a)anthracene	0.0022	0.57	<0.1	12.1	NA	78.9	9.1
Benzo(a)pyrene	0.091	0.57	0.2	0.2	96.7	2.8	0.2
Benzo(b)fluoranthene	0.061	0.57	0.1	0.4	93.6	5.7	0.3
Benzo(g,h,i)perylene	0.0020	58	<0.1	7.3	NA	82.8	9.9
Benzo(k)fluoranthene	0.15	0.57	0.3	0.1	97.5	2.3	0.1
Benzoic acid	NA	402	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.0037	8.0	<0.1	NA	NA	94.6	5.4
Carbazole	0.00095	58	<0.1	NA	NA	78.8	21.2
Chrysene	0.092	0.57	0.2	0.4	95.6	3.8	0.2
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.00067	0.57	<0.1	6.7	NA	63.1	30.2
Fluoranthene	0.062	54	<0.1	2.1	88.8	8.8	0.3
Fluorene	0.0011	54	<0.1	11.1	NA	70.0	18.8
Indeno(1,2,3-cd)pyrene	0.18	0.57	0.3	0.1	98.7	1.1	0.1
Naphthalene	0.0012	87	<0.1	20.0	NA	63.0	17.0
N-nitrosodiphenylamine	0.00095	121	<0.1	NA	NA	78.8	21.2
Phenanthrene	0.11	58	<0.1	0.8	97.3	1.7	0.2
Phenol	0.00095	1362	<0.1	NA	NA	78.8	21.2
Pyrene	0.064	58	<0.1	1.6	91.1	6.9	0.3
HAZARD INDEX			1				
Pesticides and PCBs							
4,4'-DDD	0.000023	1.9	<0.1	NA	89.7	8.1	2.2
4,4'-DDE	0.000020	1.2	<0.1	NA	88.0	9.4	2.5
4,4'-DDT	0.000067	0.64	<0.1	NA	96.4	2.8	0.8
alpha-Chlordane	0.000044	2.0	<0.1	NA	94.5	4.3	1.2
gamma-Chlordane	0.000041	2.0	<0.1	NA	94.2	4.6	1.2
HAZARD INDEX			0.0				
Inorganics							
X Aluminum	154	42	4	0.3	73.0	26.6	0.0
X Antimony	0.15	0.054	3	4.9	83.1	11.3	0.6
X Arsenic	18	1.6	11	1.4	88.3	10.3	0.0
Barium	2.9	4.3	0.7	5.2	86.9	7.8	0.1
Beryllium	0.27	0.53	0.5	5.5	92.8	1.6	0.0
Cadmium	0.46	0.78	0.6	1.6	83.4	15.0	0.0
Chromium	6.0	7.2	0.8	0.8	74.0	25.1	0.0
Cobalt	2.8	4.0	0.7	5.3	88.5	6.2	0.0
Copper	8.7	12	0.7	6.8	63.4	29.8	0.0
Iron	1788	NA	NA	NA	NA	NA	NA
Lead	3.9	6.4	0.6	0.4	75.5	24.1	0.0
Manganese	40	71	0.6	1.0	86.6	12.2	0.2
Mercury	0.036	0.026	1	4.2	70.7	25.1	0.0
Nickel	2.8	32	<0.1	5.4	90.9	3.7	0.0
Selenium	0.15	0.16	0.9	5.1	86.0	8.8	0.0
Silver	0.14	146	<0.1	5.5	92.6	1.9	0.0
X Thallium	0.54	0.060	9	5.5	93.5	0.9	0.0
X Vanadium	0.63	0.16	4	1.2	77.5	21.3	0.1
Zinc	169	129	1	0.5	89.2	10.3	0.0
Chromium VI	0.016	2.6	<0.1	NA	NA	100.0	NA
X HAZARD INDEX			40				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 10
HAZARD QUOTIENTS FOR MUSKRAT - STATION AR DOWNSTREAM
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.00011	614	<0.1	NA	NA	6.5	93.5
2-Butanone	0.00031	9.7	<0.1	NA	NA	67.4	32.6
Acetone	0.00093	1367	<0.1	NA	NA	72.9	27.1
Benzene	0.00011	11	<0.1	NA	NA	6.5	93.5
Carbon Disulfide	0.00011	101	<0.1	NA	NA	6.5	93.5
Vinyl Chloride	0.00011	0.14	<0.1	NA	NA	6.5	93.5
Xylene, m/p-	0.00022	0.91	<0.1	NA	NA	6.5	93.5
Xylene, o-	0.00011	0.91	<0.1	NA	NA	6.5	93.5
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	0.00064	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0011	152	<0.1	57.4	NA	20.5	22.1
Acenaphthylene	0.00060	58	<0.1	14.9	NA	43.0	42.1
Anthracene	0.0014	435	<0.1	27.4	NA	54.7	17.8
Benzo(a)anthracene	0.0051	0.57	<0.1	16.5	NA	78.6	5.0
Benzo(a)pyrene	0.21	0.57	0.4	0.3	96.8	2.8	0.1
Benzo(b)fluoranthene	0.16	0.57	0.3	0.5	93.6	5.7	0.2
Benzo(g,h,i)perylene	0.0043	58	<0.1	11.9	NA	82.2	5.9
Benzo(k)fluoranthene	0.24	0.57	0.4	0.1	97.5	2.3	0.1
Benzoic acid	NA	402	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.0016	8.0	<0.1	NA	NA	84.3	15.7
Carbazole	0.0010	58	<0.1	NA	NA	74.8	25.2
Chrysene	0.18	0.57	0.3	0.6	95.4	3.8	0.1
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0016	0.57	<0.1	5.7	NA	78.4	15.9
Fluoranthene	0.13	54	<0.1	2.1	88.9	8.8	0.2
Fluorene	0.00086	54	<0.1	38.1	NA	32.6	29.3
Indeno(1,2,3-cd)pyrene	0.47	0.57	0.8	0.1	98.8	1.1	0.1
Naphthalene	0.00090	87	<0.1	48.3	NA	23.5	28.2
N-nitrosodiphenylamine	0.00064	121	<0.1	NA	NA	60.5	39.5
Phenanthrene	0.28	58	<0.1	0.9	97.4	1.7	0.1
Phenol	0.00064	1362	<0.1	NA	NA	60.5	39.5
Pyrene	0.14	58	<0.1	1.8	91.1	6.9	0.2
X HAZARD INDEX			2				
Pesticides and PCBs							
4,4'-DDD	0.00062	1.9	<0.1	NA	91.7	8.3	0.1
4,4'-DDE	0.00041	1.2	<0.1	NA	90.2	9.7	0.1
4,4'-DDT	0.0011	0.64	<0.1	NA	97.1	2.8	0.0
alpha-Chlordane	0.000023	2.0	<0.1	NA	93.8	4.3	1.9
gamma-Chlordane	0.000022	2.0	<0.1	NA	93.4	4.5	2.1
HAZARD INDEX			0.0				
Inorganics							
X Aluminum	471	42	11	1.3	89.7	9.0	0.0
X Antimony	0.47	0.054	9	1.6	96.8	1.4	0.2
X Arsenic	122	1.6	76	0.2	99.1	0.7	0.0
X Barium	6.9	4.3	2	2.2	95.3	2.4	0.1
Beryllium	0.27	0.53	0.5	5.5	93.5	1.0	0.0
X Cadmium	2.0	0.78	3	0.4	99.0	0.6	0.0
X Chromium	17	7.2	2	2.8	84.3	12.9	0.0
X Cobalt	22	4.0	6	0.7	99.1	0.2	0.0
X Copper	25	12	2	2.1	93.4	4.5	0.0
Iron	8719	NA	NA	NA	NA	NA	NA
X Lead	18	6.4	3	1.3	90.4	8.3	0.0
X Manganese	124	71	2	0.6	97.2	2.2	0.1
Mercury	0.035	0.026	1	4.3	72.7	23.0	0.0
Nickel	8.3	32	0.3	1.8	97.3	0.9	0.0
X Selenium	0.30	0.16	2	2.5	95.9	1.6	0.0
Silver	1.7	146	<0.1	0.4	99.4	0.1	0.0
X Thallium	0.53	0.060	9	5.6	94.3	0.1	0.0
X Vanadium	2.0	0.16	13	1.4	91.1	7.4	0.0
Zinc	1211	129	9	0.1	99.7	0.2	0.0
Chromium VI	0.024	2.6	<0.1	NA	NA	100.0	NA
X HAZARD INDEX			150				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 11
HAZARD QUOTIENTS FOR MUSKRAT - REFERENCE
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.00018	614	<0.1	NA	NA	44.5	55.5
2-Butanone	0.0018	9.7	<0.1	NA	NA	86.3	13.7
Acetone	0.0054	1367	<0.1	NA	NA	95.3	4.7
Benzene	0.00011	11	<0.1	NA	NA	8.5	91.5
Carbon Disulfide	0.00011	101	<0.1	NA	NA	6.5	93.5
Vinyl Chloride	0.00018	0.14	<0.1	NA	NA	44.5	55.5
Xylene, m/p-	0.00026	0.91	<0.1	NA	NA	22.5	77.5
Xylene, o-	0.00014	0.91	<0.1	NA	NA	25.8	74.2
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	0.0039	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0037	152	<0.1	3.3	NA	89.8	6.9
Acenaphthylene	0.0022	58	<0.1	2.7	NA	85.7	11.5
Anthracene	0.0048	435	<0.1	2.5	NA	92.3	5.2
Benzo(a)anthracene	0.014	0.57	<0.1	0.8	NA	97.4	1.8
Benzo(a)pyrene	0.45	0.57	0.8	0.0	97.1	2.9	0.1
Benzo(b)fluoranthene	0.41	0.57	0.7	0.0	94.1	5.8	0.1
Benzo(g,h,i)perylene	0.0055	58	<0.1	1.6	NA	93.8	4.6
Benzo(k)fluoranthene	0.98	0.57	2	0.0	97.7	2.3	0.0
Benzoic acid	NA	402	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.0013	8.0	<0.1	NA	NA	80.0	20.0
Carbazole	0.0026	58	<0.1	NA	NA	90.2	9.8
Chrysene	0.45	0.57	0.8	0.0	96.1	3.8	0.1
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0029	0.57	<0.1	4.0	NA	87.4	8.6
Fluoranthene	0.39	54	<0.1	0.1	90.9	9.0	0.1
Fluorene	0.0069	54	<0.1	1.7	NA	94.6	3.6
Indeno(1,2,3-cd)pyrene	0.79	0.57	1	0.0	98.9	1.1	0.0
Naphthalene	0.0019	87	<0.1	21.5	NA	65.0	13.5
N-nitrosodiphenylamine	0.0039	121	<0.1	NA	NA	93.5	6.5
Phenanthrene	1.7	58	<0.1	0.0	98.3	1.7	0.0
Phenol	0.0039	1362	<0.1	NA	NA	93.5	6.5
Pyrene	0.37	58	<0.1	0.1	92.8	7.1	0.1
HAZARD INDEX			6				
Pesticides and PCBs							
4,4'-DDD	0.011	1.9	<0.1	NA	91.7	8.3	0.0
4,4'-DDE	0.011	1.2	<0.1	NA	90.3	9.7	0.0
4,4'-DDT	0.015	0.64	<0.1	NA	97.1	2.8	0.0
alpha-Chlordane	0.00045	2.0	<0.1	NA	95.1	4.3	0.6
gamma-Chlordane	0.00023	2.0	<0.1	NA	95.3	4.6	0.1
HAZARD INDEX			0.0				
Inorganics							
X Aluminum	229	42	5	1.7	83.5	14.7	0.1
X Antimony	0.14	0.054	3	5.4	91.0	2.9	0.7
X Arsenic	5.1	1.6	3	0.5	97.6	1.9	0.0
X Barium	66	4.3	15	0.2	99.4	0.4	0.0
Beryllium	0.27	0.53	0.5	5.5	93.4	1.0	0.0
Cadmium	0.15	0.78	0.2	5.1	85.2	9.7	0.0
Chromium	3.8	7.2	0.5	3.9	70.7	25.5	0.0
Cobalt	2.7	4.0	0.7	5.5	92.7	1.8	0.0
Copper	3.3	12	0.3	4.5	75.2	20.3	0.0
Iron	3930	NA	NA	NA	NA	NA	NA
X Lead	11	6.4	2	1.8	81.3	16.8	0.0
X Manganese	2218	71	31	0.1	99.7	0.2	0.0
Mercury	0.028	0.026	1	5.3	88.8	5.9	0.0
Nickel	2.7	32	<0.1	5.5	92.2	2.3	0.0
Selenium	0.14	0.16	0.9	5.3	89.3	5.3	0.1
Silver	0.14	146	<0.1	5.3	89.8	4.9	0.0
X Thallium	0.54	0.060	9	5.5	93.5	1.0	0.0
X Vanadium	1.9	0.16	12	1.3	80.2	18.4	0.1
Zinc	17	129	0.1	3.0	88.8	8.1	0.0
Chromium VI	0.010	2.6	<0.1	NA	NA	100.0	NA
HAZARD INDEX			85				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 12
HAZARD QUOTIENTS FOR RIVER OTTER - SITEWIDE
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Invertebrate HQ	Percent Fish HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.00010	351	<0.1	NA	NA	22.0	78.0
2-Butanone	0.00034	5.6	<0.1	NA	NA	76.3	23.7
Acetone	0.0013	780	<0.1	NA	NA	84.9	15.1
Benzene	0.038	6.5	<0.1	NA	NA	59.9	40.1
Carbon Disulfide	0.00011	58	<0.1	NA	NA	27.1	72.9
Vinyl Chloride	0.00025	0.078	<0.1	NA	NA	2.5	97.5
Xylene, m/p-	0.0014	0.52	<0.1	NA	NA	88.2	11.8
Xylene, o-	0.00023	0.52	<0.1	NA	NA	64.8	35.2
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	0.00075	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0038	87	<0.1	74.5	NA	10.6	14.9
Acenaphthylene	0.00092	33	<0.1	32.8	NA	6.0	61.2
Anthracene	0.0035	248	<0.1	66.3	NA	17.6	16.1
Benzo(a)anthracene	0.0089	0.32	<0.1	66.4	NA	27.3	6.3
Benzo(a)pyrene	0.0067	0.32	<0.1	37.5	NA	54.1	8.4
Benzo(b)fluoranthene	0.013	0.32	<0.1	56.3	NA	39.4	4.3
Benzo(g,h,i)perylene	0.0060	33	<0.1	56.6	NA	34.1	9.3
Benzo(k)fluoranthene	0.0066	0.32	<0.1	28.7	NA	62.8	8.5
Benzoic acid	0.0055	229	<0.1	NA	NA	NA	100.0
bis(2-Ethylhexyl)phthalate	0.028	4.6	<0.1	NA	NA	65.8	34.2
Carbazole	0.0013	33	<0.1	NA	NA	84.0	16.0
Chrysene	0.019	0.32	<0.1	69.6	NA	27.4	3.0
Cyclohexanone	0.023	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0016	0.32	<0.1	28.0	NA	37.3	34.8
Fluoranthene	0.055	31	<0.1	82.5	NA	17.4	0.0
Fluorene	0.0041	31	<0.1	70.2	NA	16.2	13.6
Indeno(1,2,3-cd)pyrene	0.0066	0.32	<0.1	51.8	NA	39.6	8.5
Naphthalene	0.0031	50	<0.1	68.3	NA	13.4	18.2
N-nitrosodiphenylamine	0.0028	69	<0.1	NA	NA	3.0	97.0
Phenanthenre	0.024	33	<0.1	75.7	NA	22.0	2.4
Phenol	0.00084	777	<0.1	NA	NA	32.9	67.1
Pyrene	0.038	33	<0.1	81.5	NA	18.4	0.0
HAZARD INDEX			0.2				
Pesticides and PCBs							
4,4'-DDD	0.000011	1.1	<0.1	NA	NA	96.5	3.5
4,4'-DDE	0.0000089	0.67	<0.1	NA	NA	95.5	4.5
4,4'-DDT	0.0000069	0.37	<0.1	NA	NA	94.2	5.8
alpha-Chlordane	0.000046	1.1	<0.1	NA	NA	99.1	0.9
gamma-Chlordane	0.000047	1.1	<0.1	NA	NA	99.1	0.9
HAZARD INDEX			0.0				
Inorganics							
Aluminum	16	24	0.7	37.2	6.4	56.1	0.2
X Antimony	0.035	0.031	1	14.3	57.2	25.3	3.1
Arsenic	1.9	0.92	2	27.1	6.7	62.3	3.9
Barium	0.71	2.5	0.3	31.1	56.6	11.7	0.7
Beryllium	0.051	0.30	0.2	19.6	78.4	2.0	0.1
Cadmium	0.054	0.44	0.1	21.1	36.9	41.6	0.4
Chromium	0.84	4.1	0.2	38.1	4.8	56.9	0.2
Cobalt	0.57	2.3	0.2	17.6	70.4	12.0	0.1
Copper	1.9	7.0	0.3	27.1	20.8	52.0	0.1
Iron	195	NA	NA	NA	NA	NA	NA
Lead	0.64	3.7	0.2	40.8	6.3	52.8	0.1
Manganese	3.4	40	<0.1	27.9	11.9	56.0	4.3
Mercury	0.0069	0.015	0.5	14.5	57.8	27.5	0.2
Nickel	0.53	18	<0.1	18.9	75.8	5.2	0.1
Selenium	0.089	0.092	1	5.6	89.6	4.7	0.1
Silver	0.026	83	<0.1	19.2	76.6	3.8	0.4
X Thallium	0.10	0.034	3	19.1	76.2	4.3	0.4
Vanadium	0.083	0.089	0.9	24.2	24.2	48.3	3.3
Zinc	12	73	0.2	26.5	19.9	53.4	0.3
Chromium VI	0.0051	1.5	<0.1	NA	NA	100.0	NA
X HAZARD INDEX			11				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 13
HAZARD QUOTIENTS FOR RIVER OTTER - REFERENCE
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Invertebrate HQ	Percent Fish HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.000089	351	<0.1	NA	NA	10.1	89.9
2-Butanone	0.00054	NA	<0.1	NA	NA	63.0	37.0
Acetone	0.0013	NA	<0.1	NA	NA	84.6	15.4
Benzene	0.000082	NA	<0.1	NA	NA	2.4	97.6
Carbon Disulfide	0.000082	58	<0.1	NA	NA	1.8	98.2
Vinyl Chloride	0.000089	0.078	<0.1	NA	NA	10.1	89.9
Xylene, m/p-	0.00017	0.52	<0.1	NA	NA	7.2	92.8
Xylene, o-	0.000086	0.52	<0.1	NA	NA	7.2	92.8
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	0.00098	NA	NA	NA	NA	NA	NA
Acenaphthene	0.00075	87	<0.1	53.7	NA	19.5	26.8
Acenaphthylene	0.0017	33	<0.1	76.7	NA	11.5	11.8
Anthracene	0.0015	248	<0.1	53.5	NA	33.1	13.4
Benz(a)anthracene	0.0042	0.32	<0.1	36.1	NA	59.0	4.8
Benz(a)pyrene	0.0036	0.32	<0.1	22.5	NA	71.8	5.6
Benz(b)fluoranthene	0.0039	0.32	<0.1	20.5	NA	74.4	5.1
Benz(g,h,i)perylene	0.0021	33	<0.1	38.1	NA	52.4	9.5
Benz(k)fluoranthene	0.0043	0.32	<0.1	16.5	NA	78.8	4.7
Benzot acid	NA	229	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.00084	4.6	<0.1	NA	NA	71.4	28.6
Carbazole	0.00046	33	<0.1	NA	NA	56.5	43.5
Chrysene	0.0041	0.32	<0.1	29.3	NA	65.9	4.9
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0012	0.32	<0.1	34.8	NA	47.8	17.4
Fluoranthene	0.0085	31	<0.1	32.9	NA	64.7	2.4
Fluorene	0.0012	31	<0.1	57.9	NA	25.6	16.5
Indeno(1,2,3-cd)pyrene	0.0029	0.32	<0.1	28.1	NA	64.9	7.0
Naphthalene	0.0092	50	<0.1	96.9	NA	0.9	2.2
N-nitrosodiphenylamine	0.00098	69	<0.1	NA	NA	79.5	20.5
Phenanthrene	0.0047	33	<0.1	47.9	NA	47.9	4.3
Phenol	0.00098	777	<0.1	NA	NA	79.5	20.5
Pyrene	0.0064	33	<0.1	33.1	NA	63.8	3.1
HAZARD INDEX			0.1				
Pesticides and PCBs							
4,4'-DDD	0.000053	1.1	<0.1	NA	NA	92.4	7.6
4,4'-DDE	0.000030	0.67	<0.1	NA	NA	86.4	13.6
4,4'-DDT	0.000019	0.37	<0.1	NA	NA	78.9	21.1
alpha-Chlordane	0.0000062	1.1	<0.1	NA	NA	67.7	32.3
gamma-Chlordane	0.0000027	1.1	<0.1	NA	NA	24.5	75.5
HAZARD INDEX			0.0				
Inorganics							
Aluminum	13	24	0.5	19.8	3.1	77.0	0.1
Antimony	0.027	0.031	0.9	18.8	75.2	3.2	2.8
Arsenic	0.051	0.92	<0.1	36.3	29.7	33.6	0.5
Barium	0.58	2.5	0.2	17.2	68.9	13.3	0.6
Beryllium	0.051	0.30	0.2	19.7	79.0	1.3	0.0
Cadmium	0.027	0.44	<0.1	18.5	73.9	7.6	0.1
Chromium	0.22	4.1	<0.1	45.3	18.5	35.8	0.3
Cobalt	0.51	2.3	0.2	19.6	78.5	1.9	0.0
Copper	0.78	7.0	0.1	40.9	51.1	8.0	0.0
Iron	36	NA	NA	NA	NA	NA	NA
Lead	0.55	3.7	0.1	23.5	7.3	69.2	0.0
Manganese	5.8	40	0.1	23.1	69.1	7.2	0.6
Mercury	0.015	0.015	1	6.7	91.4	1.8	0.1
Nickel	0.52	18	<0.1	19.4	77.5	3.1	0.0
Selenium	0.051	0.092	0.6	9.7	87.0	3.1	0.1
Silver	0.025	83	<0.1	19.6	78.5	1.8	0.1
Thallium	0.10	0.034	3	19.8	79.1	1.1	0.1
Vanadium	0.064	0.089	0.7	24.6	31.2	43.7	0.5
Zinc	3.6	73	<0.1	9.9	81.2	8.9	0.0
Chromium VI	0.00083	1.5	<0.1	NA	NA	100.0	NA
HAZARD INDEX			8				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 14
HAZARD QUOTIENTS FOR HERON - SITEWIDE
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Invertebrate HQ	Percent Fish HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.00011	764	<0.1	NA	NA	11.1	88.9
2-Butanone	0.00025	12	<0.1	NA	NA	61.2	38.8
Acetone	0.00088	1700	<0.1	NA	NA	72.2	27.8
Benzene	0.00012	26	<0.1	NA	NA	16.0	84.0
Carbon Disulfide	0.00011	126	<0.1	NA	NA	7.3	92.7
Vinyl Chloride	0.00010	0.17	<0.1	NA	NA	5.3	94.7
Xylene, m/p-	0.00021	2.1	<0.1	NA	NA	5.2	94.8
Xylene, o-	0.00010	2.1	<0.1	NA	NA	5.3	94.7
<i>HAZARD INDEX</i>							
Semivolatile Organics							
2-Methylphenol	0.00083	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0061	NA	NA	NA	NA	NA	NA
Acenaphthylene	0.0013	NA	NA	NA	NA	NA	NA
Anthracene	0.0053	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.014	1.3	<0.1	81.8	NA	13.2	5.0
Benzo(a)pyrene	0.0087	1.3	<0.1	54.6	NA	37.6	7.9
Benzo(b)fluoranthene	0.019	1.3	<0.1	72.6	NA	23.8	3.6
Benzo(g,h,i)perylene	0.0088	133	<0.1	73.2	NA	19.0	7.8
Benzo(k)fluoranthene	0.0070	1.3	<0.1	51.8	NA	38.4	9.8
Benzoic acid	0.0068	500	<0.1	NA	NA	NA	100.0
bis(2-Ethylhexyl)phthalate	0.029	1.1	<0.1	NA	NA	58.8	41.2
Carbazole	0.00069	133	<0.1	NA	NA	64.3	35.7
Chrysene	0.030	1.3	<0.1	82.7	NA	15.0	2.3
Cyclohexanone	0.028	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0021	1.3	<0.1	41.0	NA	26.1	32.9
Fluoranthene	0.093	125	<0.1	92.1	NA	7.8	0.0
Fluorene	0.0064	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0094	1.3	<0.1	68.9	NA	23.7	7.3
Naphthalene	0.0048	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	0.0035	150	<0.1	NA	NA	2.2	97.8
Phenanthrene	0.038	NA	NA	NA	NA	NA	NA
Phenol	0.00074	1694	<0.1	NA	NA	7.4	92.6
Pyrene	0.065	133	<0.1	90.2	NA	9.7	0.0
Low Molecular Weight PAHs	0.062	40	<0.1	87.1	NA	6.2	6.6
<i>HAZARD INDEX</i>							
Pesticides and PCBs							
4,4'-DDD	0.000010	4.3	<0.1	NA	NA	95.3	4.7
4,4'-DDE	0.0000082	2.7	<0.1	NA	NA	94.0	6.0
4,4'-DDT	0.0000064	0.0028	<0.1	NA	NA	92.3	7.7
alpha-Chlordane	0.000042	2.1	<0.1	NA	NA	98.8	1.2
gamma-Chlordane	0.000043	2.1	<0.1	NA	NA	98.9	1.1
<i>HAZARD INDEX</i>							
Inorganics							
Aluminum	41	110	0.4	77.0	2.7	20.2	0.1
Antimony	0.057	0.13	0.5	45.9	37.6	14.1	2.4
Arsenic	3.4	5.1	0.7	79.8	4.0	16.0	0.2
Barium	1.7	208	<0.1	69.4	25.8	4.5	0.3
Beryllium	0.096	0.66	0.1	54.5	44.6	0.9	0.0
Cadmium	0.10	1.5	<0.1	58.6	21.0	20.1	0.2
X Chromium	2.2	1.0	2	77.8	2.0	20.2	0.1
Cobalt	1.0	7.6	0.1	51.6	42.2	6.1	0.0
Copper	3.6	47	<0.1	63.2	11.8	25.0	0.1
Iron	460	NA	NA	NA	NA	NA	NA
X Lead	1.7	1.1	2	79.6	2.5	17.9	0.1
Manganese	7.1	977	<0.1	68.9	6.0	24.0	1.2
X Mercury	0.011	0.0064	2	46.5	38.0	15.3	0.2
Nickel	0.98	77	<0.1	53.6	43.8	2.5	0.0
Selenium	0.12	0.40	0.3	22.6	74.0	3.3	0.1
Silver	0.049	181	<0.1	53.8	44.0	1.9	0.2
X Thallium	0.19	0.074	2.6	53.7	43.9	2.1	0.3
Vanadium	0.16	11	<0.1	67.1	13.7	18.8	0.4
X Zinc	25	15	2	66.4	10.2	23.3	0.2
Chromium VI	0.0047	NA	NA	NA	NA	NA	NA
<i>HAZARD INDEX</i>							

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NA = Not Applicable

TABLE 15
HAZARD QUOTIENTS FOR HERON - REFERENCE
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Invertebrate HQ	Percent Fish HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.00011	764	<0.1	NA	NA	13.8	86.2
2-Butanone	0.00055	12	<0.1	NA	NA	55.8	44.2
Acetone	0.0012	1700	<0.1	NA	NA	80.3	19.7
Benzene	0.00010	26	<0.1	NA	NA	1.8	98.2
Carbon Disulfide	0.000099	126	<0.1	NA	NA	1.4	98.6
Vinyl Chloride	0.00011	0.17	<0.1	NA	NA	13.8	86.2
Xylene, m/p-	0.00021	2.1	<0.1	NA	NA	5.5	94.5
Xylene, o-	0.00010	2.1	<0.1	NA	NA	6.5	93.5
<i>HAZARD INDEX</i>							
Semivolatile Organics							
2-Methylphenol	0.00095	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0016	NA	NA	NA	NA	NA	NA
Acenaphthylene	0.00099	NA	NA	NA	NA	NA	NA
Anthracene	0.0019	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0037	1.3	<0.1	20.6	NA	72.7	6.7
Benzo(a)pyrene	0.0031	1.3	<0.1	12.2	NA	80.0	7.8
Benzo(b)fluoranthene	0.0055	1.3	<0.1	13.7	NA	81.9	4.4
Benzo(g,h,i)perylene	0.0018	133	<0.1	31.4	NA	55.1	13.5
Benzo(k)fluoranthene	0.0054	1.3	<0.1	14.2	NA	81.3	4.6
Benzoic acid	NA	500	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.00044	1.1	<0.1	NA	NA	44.3	55.7
Carbazole	0.00069	133	<0.1	NA	NA	64.7	35.3
Chrysene	0.0047	1.3	<0.1	24.3	NA	70.5	5.2
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0015	1.3	<0.1	50.5	NA	33.2	16.3
Fluoranthene	0.0095	125	<0.1	25.9	NA	71.5	2.6
Fluorene	0.0023	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0025	1.3	<0.1	22.8	NA	67.3	9.8
Naphthalene	0.0030	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	0.00095	150	<0.1	NA	NA	74.2	25.8
Phenanthrene	0.0079	NA	NA	NA	NA	NA	NA
Phenol	0.00095	1694	<0.1	NA	NA	74.2	25.8
Pyrene	0.0071	133	<0.1	26.6	NA	70.0	3.4
Low Molecular Weight PAHs	0.062	40	<0.1	87.1	NA	6.2	6.6
<i>HAZARD INDEX</i>							
Pesticides and PCBs							
4,4'-DDD	0.00018	4.3	<0.1	NA	NA	97.3	2.7
4,4'-DDE	0.00022	2.7	<0.1	NA	NA	97.8	2.2
4,4'-DDT	0.000087	0.0028	<0.1	NA	NA	94.3	5.7
alpha-Chlordane	0.0000063	2.1	<0.1	NA	NA	60.9	39.1
gamma-Chlordane	0.0000023	2.1	<0.1	NA	NA	92.6	7.4
<i>HAZARD INDEX</i>							
Inorganics							
Aluminum	21	110	0.2	65.5	2.1	31.3	1.2
Antimony	0.049	0.13	0.4	53.1	43.5	1.6	1.8
Arsenic	0.13	5.1	<0.1	72.9	12.2	13.8	1.2
Barium	1.0	208	<0.1	52.0	42.5	4.9	0.6
Beryllium	0.096	0.66	0.1	54.7	44.7	0.6	0.0
Cadmium	0.050	1.5	<0.1	51.9	42.5	5.5	0.1
Chromium	0.74	1.0	0.7	69.1	5.8	25.1	0.0
Cobalt	0.96	7.6	0.1	54.4	44.5	1.0	0.1
Copper	1.1	47	<0.1	48.2	39.5	12.2	0.1
Iron	101	NA	NA	NA	NA	NA	NA
Lead	1.1	1.1	0.9	63.1	4.0	32.4	0.5
Manganese	11	977	<0.1	54.9	37.4	6.0	1.7
X Mercury	0.020	0.0064	3	26.0	72.3	1.6	0.1
Nickel	0.96	77	<0.1	54.3	44.4	1.3	0.1
Selenium	0.076	0.40	0.2	34.6	63.3	1.9	0.2
Silver	0.049	181	<0.1	53.5	43.8	2.7	0.1
X Thallium	0.19	0.074	2.6	54.7	44.7	0.5	0.0
Vanadium	0.17	11	<0.1	47.9	12.4	39.0	0.7
Zinc	5.2	15	0.4	34.1	60.7	5.1	0.1
X Chromium VI	0.0020	NA	NA	NA	NA	NA	NA
<i>HAZARD INDEX</i>							
X NOTES:							
HQ = Hazard quotient							
TRV = Toxicity Reference Value							
X = Indicates a COPC with a HQ > 1							
0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.							
Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.							
NA = Not Applicable							

TABLE 16
HAZARD QUOTIENTS FOR MALLARD - SITEWIDE
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.00011	764	<0.1	NA	NA	46.7	53.3
2-Butanone	0.00070	12	<0.1	NA	NA	91.7	8.3
Acetone	0.0028	1700	<0.1	NA	NA	94.8	5.2
Benzene	0.00014	26	<0.1	NA	NA	57.1	42.9
Carbon Disulfide	0.000090	126	<0.1	NA	NA	35.5	64.5
Vinyl Chloride	0.000081	0.17	<0.1	NA	NA	28.0	72.0
Xylene, m/p-	0.00016	2.1	<0.1	NA	NA	27.6	72.4
Xylene, o-	0.000081	2.1	<0.1	NA	NA	28.0	72.0
<i>HAZARD INDEX</i>							
Semivolatile Organics							
2-Methylphenol	0.0010	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0054	NA	NA	NA	NA	NA	NA
Acenaphthylene	0.0011	NA	NA	NA	NA	NA	NA
Anthracene	0.0053	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.018	1.3	<0.1	54.8	NA	42.9	2.3
Benzo(a)pyrene	0.19	1.3	0.1	2.2	90.4	7.2	0.2
Benzo(b)fluoranthene	0.14	1.3	0.1	8.2	78.5	13.0	0.3
Benzo(g,h,i)perylene	0.013	133	<0.1	42.9	NA	53.9	3.1
Benzo(k)fluoranthene	0.19	1.3	0.1	1.6	92.3	5.9	0.2
Benzoic acid	0.0040	500	<0.1	NA	NA	NA	100.0
bis(2-Ethylhexyl)phthalate	0.077	1.1	<0.1	NA	NA	90.9	9.1
Carbazole	0.0020	133	<0.1	NA	NA	92.6	7.4
Chrysene	0.21	1.3	0.2	10.0	81.1	8.8	0.2
Cyclohexanone	0.017	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0034	1.3	<0.1	21.6	NA	66.5	12.0
Fluoranthene	0.22	125	<0.1	33.9	52.2	13.9	0.0
Fluorene	0.0058	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.32	1.3	0.2	1.7	95.3	2.9	0.1
Naphthalene	0.0042	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	0.0023	150	<0.1	NA	NA	13.8	86.2
Phenanthrene	0.32	NA	NA	NA	NA	NA	NA
Phenol	0.00063	1694	<0.1	NA	NA	35.7	64.3
Pyrene	0.20	133	<0.1	24.7	62.5	12.9	0.0
Low Molecular Weight PAHs	0.35	40	<0.1	13.4	81.3	4.6	0.7
<i>HAZARD INDEX</i>							
Pesticides and PCBs							
4,4'-DDD	0.00021	4.3	<0.1	NA	80.3	19.6	0.1
4,4'-DDE	0.00014	2.7	<0.1	NA	77.3	22.5	0.2
4,4'-DDT	0.00034	0.0028	0.1	NA	92.6	7.3	0.1
alpha-Chlordane	0.0016	2.1	<0.1	NA	89.0	11.0	0.0
gamma-Chlordane	0.0015	2.1	<0.1	NA	88.4	11.6	0.0
<i>HAZARD INDEX</i>							
Inorganics							
X Aluminum	212	110	2	23.1	59.2	17.7	0.0
X Antimony	0.22	0.13	2	18.9	63.0	17.7	0.4
X Arsenic	42	5.1	8	10.0	84.6	5.3	0.0
Barium	4.0	208	<0.1	44.3	47.9	7.7	0.1
Beryllium	0.16	0.66	0.2	51.0	46.7	2.4	0.0
Cadmium	0.76	1.5	0.5	12.2	76.6	11.2	0.0
X Chromium	9.0	1.0	9	28.8	47.9	23.3	0.0
Cobalt	7.6	7.6	1	10.7	86.0	3.4	0.0
Copper	14	47	0.3	25.0	48.8	26.2	0.0
Iron	3481	NA	NA	NA	NA	NA	NA
X Lead	8.3	1.1	7	25.5	59.3	15.2	0.0
Manganese	.51	977	<0.1	15.1	70.8	14.0	0.1
X Mercury	0.023	0.0064	4	35.8	32.8	31.4	0.0
Nickel	3.3	77	<0.1	24.7	72.2	3.1	0.0
Selenium	0.16	0.40	0.4	24.7	52.4	22.8	0.1
Silver	0.57	181	<0.1	7.2	86.7	6.1	0.0
X Thallium	0.33	0.074	4	49.4	45.3	5.2	0.1
Vanadium	0.86	11	<0.1	18.9	63.9	17.2	0.0
Zinc	408	15	28	6.4	87.7	5.9	0.0
Chromium VI	0.023	NA	NA	NA	NA	NA	NA
<i>HAZARD INDEX</i>							

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NA = Not Applicable

TABLE 17
HAZARD QUOTIENTS FOR MALLARD - HBHA POND
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.00011	764	<0.1	NA	NA	46.7	53.3
2-Butanone	0.000064	12	<0.1	NA	NA	8.9	91.1
Acetone	0.00020	1700	<0.1	NA	NA	28.7	71.3
Benzene	0.000064	26	<0.1	NA	NA	8.9	91.1
Carbon Disulfide	0.000090	126	<0.1	NA	NA	35.5	64.5
Vinyl Chloride	0.000064	0.17	<0.1	NA	NA	8.9	91.1
Xylene, m/p-	0.00013	2.1	<0.1	NA	NA	9.5	90.5
Xylene, o-	0.000064	2.1	<0.1	NA	NA	8.9	91.1
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	0.00063	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0011	NA	NA	NA	NA	NA	NA
Acenaphthylene	0.0011	NA	NA	NA	NA	NA	NA
Anthracene	0.0023	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0064	1.3	<0.1	56.2	NA	38.3	5.5
Benzo(a)pyrene	0.039	1.3	<0.1	6.3	85.9	6.8	0.9
Benzo(b)fluoranthene	0.033	1.3	<0.1	13.5	73.3	12.1	1.1
Benzo(g,h,i)perylene	0.0041	133	<0.1	56.2	NA	35.2	8.6
Benzo(k)fluoranthene	0.055	1.3	<0.1	2.4	91.2	5.8	0.6
Benzoic acid	0.0040	500	<0.1	NA	NA	NA	100.0
bis(2-Ethylhexyl)phthalate	0.070	1.1	<0.1	NA	NA	99.5	0.5
Carbazole	0.00045	133	<0.1	NA	NA	67.5	32.5
Chrysene	0.039	1.3	<0.1	10.4	80.0	8.7	0.9
Cyclohexanone	0.017	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0013	1.3	<0.1	43.4	NA	30.1	26.5
Fluoranthene	0.041	125	<0.1	25.6	58.0	15.5	0.8
Fluorene	0.0011	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.064	1.3	<0.1	3.8	92.8	2.8	0.5
Naphthalene	0.0019	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	0.0020	150	<0.1	NA	NA	14.2	85.8
Phenanthrene	0.046	NA	NA	NA	NA	NA	NA
Phenol	0.00069	1694	<0.1	NA	NA	41.0	59.0
Pyrene	0.037	133	<0.1	21.2	64.5	13.3	0.9
Low Molecular Weight PAHs	NA	NA	<0.1	NA	NA	NA	NA
HAZARD INDEX			0.2				
Pesticides and PCBs							
4,4'-DDD	0.00021	4.3	<0.1	NA	80.3	19.6	0.1
4,4'-DDE	0.000032	2.7	<0.1	NA	76.9	22.3	0.8
4,4'-DDT	0.000098	0.0028	<0.1	NA	92.5	7.3	0.3
alpha-Chlordane	0.0016	2.1	<0.1	NA	89.0	11.0	0.0
gamma-Chlordane	0.0015	2.1	<0.1	NA	88.4	11.6	0.0
HAZARD INDEX			0.0				
Inorganics							
Aluminum	81	110	0.7	60.5	11.8	27.7	0.0
Antimony	0.11	0.13	0.9	36.3	33.3	29.7	0.7
X Arsenic	12	5.1	2	35.7	54.0	10.3	0.0
Barium	2.8	208	<0.1	64.2	26.7	9.0	0.1
Beryllium	0.16	0.66	0.2	51.5	47.2	1.3	0.0
Cadmium	0.20	1.5	0.1	47.3	19.0	33.7	0.1
X Chromium	4.6	1.0	5	57.2	10.2	32.6	0.0
Cobalt	1.7	7.6	0.2	49.0	44.9	6.2	0.0
Copper	11	47	0.2	39.6	25.1	35.2	0.0
Iron	1192	NA	NA	NA	NA	NA	NA
X Lead	4.2	1.1	4	50.4	19.5	30.1	0.0
Manganese	40	977	<0.1	19.3	78.9	1.7	0.1
X Mercury	0.021	0.0064	3	39.4	36.1	24.6	0.0
Nickel	1.6	77	<0.1	49.6	45.4	4.9	0.0
Selenium	0.094	0.40	0.2	43.3	39.7	16.8	0.2
Silver	0.54	181	<0.1	7.6	91.7	0.7	0.0
X Thallium	0.33	0.074	4.5	49.4	45.3	5.2	0.1
Vanadium	0.28	11	<0.1	57.6	13.2	29.1	0.1
Zinc	62	15	4	42.2	18.4	39.3	0.0
Chromium VI	0.016	NA	NA	NA	NA	NA	NA
X HAZARD INDEX			25				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NA = Not Applicable

TABLE 18
HAZARD QUOTIENTS FOR MALLARD - HBHA WETLAND
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.000081	764	<0.1	NA	NA	28.0	72.0
2-Butanone	0.00070	12	<0.1	NA	NA	91.7	8.3
Acetone	0.0028	1700	<0.1	NA	NA	94.8	5.2
Benzene	0.00014	26	<0.1	NA	NA	57.1	42.9
Carbon Disulfide	0.000082	126	<0.1	NA	NA	29.7	70.3
Vinyl Chloride	0.000081	0.17	<0.1	NA	NA	28.0	72.0
Xylene, m/p-	0.00016	2.1	<0.1	NA	NA	27.6	72.4
Xylene, o-	0.000081	2.1	<0.1	NA	NA	28.0	72.0
HAZARD INDEX			0.0				
Semivolatile Organics							
2-Methylphenol	0.0010	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0054	NA	NA	NA	NA	NA	NA
Acenaphthylene	0.0011	NA	NA	NA	NA	NA	NA
Anthracene	0.0053	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.018	1.3	<0.1	54.8	NA	42.9	2.3
Benzo(a)pyrene	0.19	1.3	0.1	2.2	90.4	7.2	0.2
Benzo(b)fluoranthene	0.14	1.3	0.1	8.2	78.5	13.0	0.3
Benzo(g,h,i)perylene	0.013	133	<0.1	42.9	NA	53.9	3.1
Benzo(k)fluoranthene	0.19	1.3	0.1	1.6	92.3	5.9	0.2
Benzoic acid	0.000052	500	<0.1	NA	NA	NA	100.0
bis(2-Ethylhexyl)phthalate	0.0098	1.1	<0.1	NA	NA	28.8	71.2
Carbazole	0.0020	133	<0.1	NA	NA	92.6	7.4
Chrysene	0.21	1.3	0.2	10.0	81.1	8.8	0.2
Cyclohexanone	0.0058	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0034	1.3	<0.1	21.6	NA	66.5	12.0
Fluoranthene	0.22	125	<0.1	33.9	52.2	13.9	0.0
Fluorene	0.0058	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.32	1.3	0.2	1.7	95.3	2.9	0.1
Naphthalene	0.0042	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	0.0023	150	<0.1	NA	NA	13.8	86.2
Phenanthrene	0.32	NA	NA	NA	NA	NA	NA
Phenol	0.00057	1694	<0.1	NA	NA	39.3	60.7
Pyrene	0.20	133	<0.1	24.7	62.5	12.9	0.0
Low Molecular Weight PAHs	0.35	40	<0.1	13.4	81.3	4.6	0.7
HAZARD INDEX			0.9				
Pesticides and PCBs							
4,4'-DDD	0.000031	4.3	<0.1	NA	79.6	19.4	0.9
4,4'-DDE	0.000023	2.7	<0.1	NA	76.5	22.2	1.3
4,4'-DDT	0.000021	0.0028	<0.1	NA	91.4	7.2	1.4
alpha-Chlordane	0.000014	2.1	<0.1	NA	87.2	10.7	2.1
gamma-Chlordane	0.000013	2.1	<0.1	NA	86.5	11.4	2.2
HAZARD INDEX			0.0				
Inorganics							
Aluminum	163	110	1	3.2	76.7	20.1	0.0
X Antimony	0.19	0.13	2	21.4	71.2	7.3	0.1
X Arsenic	39	5.1	8	3.4	90.8	5.7	0.0
Barium	3.1	208	<0.1	26.6	63.2	10.1	0.1
Beryllium	0.16	0.66	0.2	51.0	46.7	2.4	0.0
Cadmium	0.71	1.5	0.5	5.8	82.2	12.0	0.0
X Chromium	5.9	1.0	6	6.1	73.4	20.5	0.0
Cobalt	7.6	7.6	1	10.7	86.0	3.4	0.0
Copper	12	47	0.3	26.4	56.7	16.9	0.0
Iron	3048	NA	NA	NA	NA	NA	NA
X Lead	6.1	1.1	5	2.9	80.8	16.2	0.0
Manganese	47	977	<0.1	8.3	76.4	15.1	0.1
X Mercury	0.023	0.0064	4	35.8	32.8	31.4	0.0
Nickel	3.3	77	<0.1	24.7	72.2	3.1	0.0
Selenium	0.14	0.40	0.3	29.6	62.8	7.5	0.1
Silver	0.082	181	<0.1	49.9	45.7	4.4	0.0
X Thallium	0.32	0.074	4	51.5	47.2	1.2	0.0
Vanadium	0.71	11	<0.1	5.7	77.9	16.3	0.0
Zinc	382	15	26	1.5	93.6	4.9	0.0
Chromium VI	0.013	NA	NA	NA	NA	NA	NA
HAZARD INDEX			59				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NA = Not Applicable

TABLE 19
HAZARD QUOTIENTS FOR MALLARD - REFERENCE
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Volatile Organics							
1,1-Dichloroethane	0.00012	764	<0.1	NA	NA	52.8	47.2
2-Butanone	0.0014	12	<0.1	NA	NA	89.8	10.2
Acetone	0.0043	1700	<0.1	NA	NA	96.6	3.4
Benzene	0.000066	26	<0.1	NA	NA	11.5	88.5
Carbon Disulfide	0.000064	126	<0.1	NA	NA	8.9	91.1
Vinyl Chloride	0.00012	0.17	<0.1	NA	NA	52.8	47.2
Xylene, m/p-	0.00016	2.1	<0.1	NA	NA	28.8	71.2
Xylene, o-	0.000086	2.1	<0.1	NA	NA	32.7	67.3
<i>HAZARD INDEX</i>							
Semivolatile Organics							
2-Methylphenol	0.0031	NA	NA	NA	NA	NA	NA
Acenaphthene	0.0034	NA	NA	NA	NA	NA	NA
Acenaphthylene	0.0020	NA	NA	NA	NA	NA	NA
Anthracene	0.0044	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.012	1.3	<0.1	5.5	NA	93.3	1.2
Benzo(a)pyrene	0.14	1.3	0.1	0.2	92.3	7.3	0.1
Benzo(b)fluoranthene	0.13	1.3	0.1	0.5	85.3	14.1	0.1
Benzo(g,h,i)perylene	0.0048	133	<0.1	10.2	NA	86.7	3.0
Benzo(k)fluoranthene	0.30	1.3	0.2	0.2	93.8	5.9	0.0
Benzoic acid	NA	500	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.00095	1.1	<0.1	NA	NA	84.8	15.2
Carbazole	0.0020	133	<0.1	NA	NA	92.8	7.2
Chrysene	0.14	1.3	0.1	0.7	89.5	9.7	0.1
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0029	1.3	<0.1	22.7	NA	72.2	5.1
Fluoranthene	0.14	125	<0.1	1.6	77.6	20.7	0.1
Fluorene	0.0061	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.24	1.3	0.2	0.2	96.8	2.9	0.1
Naphthalene	0.0033	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	0.0031	150	<0.1	NA	NA	95.3	4.7
Phenanthrene	0.51	NA	NA	NA	NA	NA	NA
Phenol	0.0031	1694	<0.1	NA	NA	95.3	4.7
Pyrene	0.12	133	<0.1	1.3	81.7	16.8	0.1
Low Molecular Weight PAHs	0.53	40	<0.1	1.2	91.7	7.0	0.2
<i>HAZARD INDEX</i>							
Pesticides and PCBs							
4,4'-DDD	0.0037	4.3	<0.1	NA	80.3	19.6	0.1
4,4'-DDE	0.0039	2.7	<0.1	NA	77.4	22.5	0.1
X 4,4'-DDT	0.0047	0.0028	2	NA	92.7	7.3	0.1
alpha-Chlordane	0.00015	2.1	<0.1	NA	88.1	10.9	1.0
X gamma-Chlordane	0.000075	2.1	<0.1	NA	88.3	11.6	0.1
X data-cs="8" data-kind="parent"> <i>HAZARD INDEX</i>							
Inorganics							
Aluminum	105	110	1	20.2	54.0	25.6	0.1
Antimony	0.082	0.13	0.7	49.8	45.6	3.9	0.6
Arsenic	1.7	5.1	0.3	8.9	86.6	4.5	0.1
Barium	20	208	<0.1	4.0	95.0	1.0	0.0
Beryllium	0.16	0.66	0.2	51.5	47.1	1.4	0.0
X Cadmium	0.089	1.5	<0.1	45.5	41.7	12.8	0.0
Chromium	2.4	1.0	2	33.8	33.5	32.7	0.0
Cobalt	1.6	7.6	0.2	50.9	46.6	2.5	0.0
Copper	2.1	47	<0.1	38.7	35.4	25.9	0.0
X Iron	1320	NA	NA	NA	NA	NA	NA
Lead	5.0	1.1	4	20.8	50.7	28.4	0.1
Manganese	669	977	0.7	1.5	98.1	0.4	0.0
X Mercury	0.017	0.0064	3	48.1	44.0	7.9	0.0
Nickel	1.6	77	<0.1	50.5	46.3	3.2	0.0
Selenium	0.084	0.40	0.2	48.4	44.3	7.2	0.1
Silver	0.083	181	<0.1	48.8	44.7	6.5	0.0
X Thallium	0.32	0.074	4	51.5	47.2	1.3	0.0
Vanadium	0.86	11	<0.1	15.0	52.3	32.6	0.1
Zinc	8.4	15	0.6	33.1	53.5	13.3	0.0
X Chromium VI	0.0083	NA	NA	NA	NA	NA	NA
X data-cs="8" data-kind="parent"> <i>HAZARD INDEX</i>							

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NA = Not Applicable

TABLE 20
HAZARD QUOTIENTS FOR SHREW - STATION A6
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Volatile Organics						
1,1-Dichloroethane	NA	1679	NA	NA	NA	NA
2-Butanone	NA	27	NA	NA	NA	NA
Acetone	NA	3736	NA	NA	NA	NA
Benzene	NA	31	NA	NA	NA	NA
Carbon Disulfide	NA	277	NA	NA	NA	NA
Vinyl Chloride	NA	0.37	NA	NA	NA	NA
Xylene, m/p-	NA	2.5	NA	NA	NA	NA
Xylene, o-	NA	2.5	NA	NA	NA	NA
HAZARD INDEX			0.0			
Semivolatile Organics						
2-Methylphenol	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	416	NA	NA	NA	NA
Acenaphthylene	NA	159	NA	NA	NA	NA
Anthracene	NA	1189	NA	NA	NA	NA
Benzo(a)anthracene	NA	1.5	NA	NA	NA	NA
Benzo(a)pyrene	NA	1.5	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	1.5	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	159	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	1.5	NA	NA	NA	NA
Benzoic acid	NA	1099	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	22	NA	NA	NA	NA
Carbazole	NA	159	NA	NA	NA	NA
Chrysene	NA	1.5	NA	NA	NA	NA
Cyclohexanone	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	1.5	NA	NA	NA	NA
Fluoranthene	NA	149	NA	NA	NA	NA
Fluorene	NA	149	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	1.5	NA	NA	NA	NA
Naphthalene	NA	238	NA	NA	NA	NA
N-nitrosodiphenylamine	NA	330	NA	NA	NA	NA
Phenanthrene	NA	159	NA	NA	NA	NA
Phenol	NA	3723	NA	NA	NA	NA
Pyrene	NA	159	NA	NA	NA	NA
HAZARD INDEX			0.0			
Pesticides and PCBs						
4,4'-DDD	NA	5.1	NA	NA	NA	NA
4,4'-DDE	NA	3.2	NA	NA	NA	NA
4,4'-DDT	NA	1.8	NA	NA	NA	NA
alpha-Chlordane	NA	5.4	NA	NA	NA	NA
gamma-Chlordane	NA	5.4	NA	NA	NA	NA
HAZARD INDEX			0.0			
Inorganics						
X Aluminum	622	58	11	87.0	13.0	NA
X Antimony	4.8	0.15	32	87.0	13.0	NA
X Arsenic	68	0.15	457	87.0	13.0	NA
X Barium	51	12	4	87.0	13.0	NA
Beryllium	0.020	1.5	<0.1	87.0	13.0	NA
Cadmium	0.22	2.1	0.1	87.0	13.0	NA
X Chromium	255	20	13	87.0	13.0	NA
Cobalt	1.0	11	<0.1	87.0	13.0	NA
X Copper	58	33	1.7	87.0	13.0	NA
Iron	6369	NA	NA	NA	NA	NA
X Lead	495	18	28	87.0	13.0	NA
Manganese	34	193	0.2	87.0	13.0	NA
X Mercury	0.91	0.070	13	87.0	13.0	NA
Nickel	1.6	88	<0.1	87.0	13.0	NA
X Selenium	0.72	0.44	2	87.0	13.0	NA
Silver	1.6	398	<0.1	87.0	13.0	NA
X Thallium	4.0	0.16	25	87.0	13.0	NA
X Vanadium	3.6	0.43	8	87.0	13.0	NA
Zinc	86	352	0.2	87.0	13.0	NA
Chromium VI	NA	7.2	0.6	87.0	13.0	NA
HAZARD INDEX			596			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NA = Not Applicable

TABLE 21
HAZARD QUOTIENTS FOR SHREW - STATION BE-1
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Volatile Organics						
1,1-Dichloroethane	NA	1679	NA	NA	NA	NA
2-Butanone	NA	27	NA	NA	NA	NA
Acetone	NA	3736	NA	NA	NA	NA
Benzene	NA	31	NA	NA	NA	NA
Carbon Disulfide	NA	277	NA	NA	NA	NA
Vinyl Chloride	NA	0.37	NA	NA	NA	NA
Xylene, m/p-	NA	2.5	NA	NA	NA	NA
Xylene, o-	NA	2.5	NA	NA	NA	NA
HAZARD INDEX			0.0			
Semivolatile Organics						
2-Methylphenol	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	416	NA	NA	NA	NA
Acenaphthylene	NA	159	NA	NA	NA	NA
Anthracene	NA	1189	NA	NA	NA	NA
Benzo(a)anthracene	NA	1.5	NA	NA	NA	NA
Benzo(a)pyrene	NA	1.5	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	1.5	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	159	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	1.5	NA	NA	NA	NA
Benzoic acid	NA	1099	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	22	NA	NA	NA	NA
Carbazole	NA	159	NA	NA	NA	NA
Chrysene	NA	1.5	NA	NA	NA	NA
Cyclohexanone	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	1.5	NA	NA	NA	NA
Fluoranthene	NA	149	NA	NA	NA	NA
Fluorene	NA	149	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	1.5	NA	NA	NA	NA
Naphthalene	NA	238	NA	NA	NA	NA
N-nitrosodiphenylamine	NA	330	NA	NA	NA	NA
Phenanthrene	NA	159	NA	NA	NA	NA
Phenol	NA	3723	NA	NA	NA	NA
Pyrene	NA	159	NA	NA	NA	NA
HAZARD INDEX			0.0			
Pesticides and PCBs						
4,4'-DDD	NA	5.1	NA	NA	NA	NA
4,4'-DDE	NA	3.2	NA	NA	NA	NA
4,4'-DDT	NA	1.8	NA	NA	NA	NA
alpha-Chlordane	NA	5.4	NA	NA	NA	NA
gamma-Chlordane	NA	5.4	NA	NA	NA	NA
HAZARD INDEX			0.0			
Inorganics						
X Aluminim	698	58	12	87.0	13.0	NA
X Antimony	0.10	0.15	0.7	87.0	13.0	NA
X Arsenic	2.8	0.15	19	87.0	13.0	NA
Barium	6.0	12	0.5	87.0	13.0	NA
Beryllium	0.040	1.5	<0.1	87.0	13.0	NA
Cadmium	0.18	2.1	<0.1	87.0	13.0	NA
Chromium	3.3	20	0.2	87.0	13.0	NA
Cobalt	0.66	11	<0.1	87.0	13.0	NA
Copper	8.5	33	0.3	87.0	13.0	NA
Iron	1000	NA	NA	NA	NA	NA
Lead	14	18	0.8	87.0	13.0	NA
Manganese	17	193	<0.1	87.0	13.0	NA
Mercury	0.018	0.070	0.3	87.0	13.0	NA
Nickel	1.8	88	<0.1	87.0	13.0	NA
Selenium	0.27	0.44	0.6	87.0	13.0	NA
Silver	0.50	398	<0.1	87.0	13.0	NA
Thallium	0.10	0.16	0.6	87.0	13.0	NA
X Vanadium	2.9	0.43	7	87.0	13.0	NA
Zinc	47	352	0.1	87.0	13.0	NA
Chromium VI	NA	7.2	<0.1	87.0	13.0	NA
HAZARD INDEX			42			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NA = Not Applicable

TABLE 22
HAZARD QUOTIENTS FOR SHREW - STATION BE-2
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Volatile Organics						
1,1-Dichloroethane	NA	1679	NA	NA	NA	NA
2-Butanone	NA	27	NA	NA	NA	NA
Acetone	NA	3736	NA	NA	NA	NA
Benzene	NA	31	NA	NA	NA	NA
Carbon Disulfide	NA	277	NA	NA	NA	NA
Vinyl Chloride	NA	0.37	NA	NA	NA	NA
Xylene, m/p-	NA	2.5	NA	NA	NA	NA
Xylene, o-	NA	2.5	NA	NA	NA	NA
HAZARD INDEX			0.0			
Semivolatile Organics						
2-Methylphenol	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	416	NA	NA	NA	NA
Acenaphthylene	NA	159	NA	NA	NA	NA
Anthracene	NA	1189	NA	NA	NA	NA
Benzo(a)anthracene	NA	1.5	NA	NA	NA	NA
Benzo(a)pyrene	NA	1.5	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	1.5	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	159	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	1.5	NA	NA	NA	NA
Benzoic acid	NA	1099	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	22	NA	NA	NA	NA
Carbazole	NA	159	NA	NA	NA	NA
Chrysene	NA	1.5	NA	NA	NA	NA
Cyclohexanone	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	1.5	NA	NA	NA	NA
Fluoranthene	NA	149	NA	NA	NA	NA
Fluorene	NA	149	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	1.5	NA	NA	NA	NA
Naphthalene	NA	238	NA	NA	NA	NA
N-nitrosodiphenylamine	NA	330	NA	NA	NA	NA
Phenanthrene	NA	159	NA	NA	NA	NA
Phenol	NA	3723	NA	NA	NA	NA
Pyrene	NA	159	NA	NA	NA	NA
HAZARD INDEX			0.0			
Pesticides and PCBs						
4,4'-DDD	NA	5.1	NA	NA	NA	NA
4,4'-DDE	NA	3.2	NA	NA	NA	NA
4,4'-DDT	NA	1.8	NA	NA	NA	NA
alpha-Chlordane	NA	5.4	NA	NA	NA	NA
gamma-Chlordane	NA	5.4	NA	NA	NA	NA
HAZARD INDEX			0.0			
Inorganics						
X Aluminim	1447	58	25	87.0	13.0	NA
X Antimony	0.30	0.15	2	87.0	13.0	NA
X Arsenic	36	0.15	238	87.0	13.0	NA
Barium	7.5	12	0.6	87.0	13.0	NA
Beryllium	0.082	1.5	<0.1	87.0	13.0	NA
Cadmium	0.48	2.1	0.2	87.0	13.0	NA
Chromium	7.1	20	0.4	87.0	13.0	NA
Cobalt	2.8	11	0.3	87.0	13.0	NA
Copper	20	33	0.6	87.0	13.0	NA
Iron	5294	NA	NA	NA	NA	NA
Lead	19	18	1	87.0	13.0	NA
Manganese	62	193	0.3	87.0	13.0	NA
Mercury	0.036	0.070	0.5	87.0	13.0	NA
Nickel	2.8	88	<0.1	87.0	13.0	NA
Selenium	0.38	0.44	0.9	87.0	13.0	NA
Silver	0.13	398	<0.1	87.0	13.0	NA
X Thallium	0.26	0.16	2	87.0	13.0	NA
X Vanadium	7.5	0.43	18	87.0	13.0	NA
Zinc	305	352	0.9	87.0	13.0	NA
Chromium VI	NA	7.2	<0.1	87.0	13.0	NA
HAZARD INDEX			290			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NA = Not Applicable

TABLE 23
HAZARD QUOTIENTS FOR SHREW - STATION BE-4
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Volatile Organics						
1,1-Dichloroethane	NA	1679	NA	NA	NA	NA
2-Butanone	NA	27	NA	NA	NA	NA
Acetone	NA	3736	NA	NA	NA	NA
Benzene	NA	31	NA	NA	NA	NA
Carbon Disulfide	NA	277	NA	NA	NA	NA
Vinyl Chloride	NA	0.37	NA	NA	NA	NA
Xylene, m/p-	NA	2.5	NA	NA	NA	NA
Xylene, o-	NA	2.5	NA	NA	NA	NA
<i>HAZARD INDEX</i>			0.0			
Semivolatile Organics						
2-Methylphenol	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	416	NA	NA	NA	NA
Acenaphthylene	NA	159	NA	NA	NA	NA
Anthracene	NA	1189	NA	NA	NA	NA
Benzo(a)anthracene	NA	1.5	NA	NA	NA	NA
Benzo(a)pyrene	NA	1.5	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	1.5	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	159	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	1.5	NA	NA	NA	NA
Benzoic acid	NA	1099	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	22	NA	NA	NA	NA
Carbazole	NA	159	NA	NA	NA	NA
Chrysene	NA	1.5	NA	NA	NA	NA
Cyclohexanone	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	1.5	NA	NA	NA	NA
Fluoranthene	NA	149	NA	NA	NA	NA
Fluorene	NA	149	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	1.5	NA	NA	NA	NA
Naphthalene	NA	238	NA	NA	NA	NA
N-nitrosodiphenylamine	NA	330	NA	NA	NA	NA
Phenanthrene	NA	159	NA	NA	NA	NA
Phenol	NA	3723	NA	NA	NA	NA
Pyrene	NA	159	NA	NA	NA	NA
<i>HAZARD INDEX</i>			0.0			
Pesticides and PCBs						
4,4'-DDD	NA	5.1	NA	NA	NA	NA
4,4'-DDE	NA	3.2	NA	NA	NA	NA
4,4'-DDT	NA	1.8	NA	NA	NA	NA
alpha-Chlordane	NA	5.4	NA	NA	NA	NA
gamma-Chlordane	NA	5.4	NA	NA	NA	NA
<i>HAZARD INDEX</i>			0.0			
Inorganics						
X Aluminim	1057	58	18	87.0	13.0	NA
X Antimony	0.19	0.15	1	87.0	13.0	NA
X Arsenic	7.1	0.15	48	87.0	13.0	NA
Barium	3.8	12	0.3	87.0	13.0	NA
Beryllium	0.069	1.5	<0.1	87.0	13.0	NA
Cadmium	0.10	2.1	<0.1	87.0	13.0	NA
Chromium	17	20	0.9	87.0	13.0	NA
Cobalt	0.75	11	<0.1	87.0	13.0	NA
Copper	8.3	33	0.2	87.0	13.0	NA
Iron	1381	NA	NA	NA	NA	NA
X Lead	28	18	2	87.0	13.0	NA
Manganese	66	193	0.3	87.0	13.0	NA
Mercury	0.018	0.070	0.3	87.0	13.0	NA
Nickel	2.2	88	<0.1	87.0	13.0	NA
Selenium	0.50	0.44	1	87.0	13.0	NA
Silver	0.12	398	<0.1	87.0	13.0	NA
Thallium	0.16	0.16	1	87.0	13.0	NA
X Vanadium	6.6	0.43	16	87.0	13.0	NA
Zinc	46	352	0.1	87.0	13.0	NA
Chromium VI	NA	7.2	<0.1	87.0	13.0	NA
<i>HAZARD INDEX</i>			89			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NA = Not Applicable

TABLE 24
HAZARD QUOTIENTS FOR SHREW - STATION HB02-2
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Volatile Organics						
1,1-Dichloroethane	0.00022	1679	<0.1	NA	NA	100.0
2-Butanone	0.00022	27	<0.1	NA	NA	100.0
Acetone	0.00055	3736	<0.1	NA	NA	100.0
Benzene	0.00022	31	<0.1	NA	NA	100.0
Carbon Disulfide	0.00022	277	<0.1	NA	NA	100.0
Vinyl Chloride	0.00022	0.37	<0.1	NA	NA	100.0
Xylene, m/p-	0.00044	2.5	<0.1	NA	NA	100.0
Xylene, o-	0.00022	2.5	<0.1	NA	NA	100.0
<i>HAZARD INDEX</i>			0.0			
Semivolatile Organics						
2-Methylphenol	0.0015	NA	NA	NA	NA	NA
Acenaphthene	0.0015	416	<0.1	NA	NA	100.0
Acenaphthylene	0.0015	159	<0.1	NA	NA	100.0
Anthracene	0.0015	1189	<0.1	NA	NA	100.0
Benzo(a)anthracene	0.0015	1.5	<0.1	NA	NA	100.0
Benzo(a)pyrene	0.0015	1.5	<0.1	NA	NA	100.0
Benzo(b)fluoranthene	0.0015	1.5	<0.1	NA	NA	100.0
Benzo(g,h,i)perylene	0.0015	159	<0.1	NA	NA	100.0
Benzo(k)fluoranthene	0.0015	1.5	<0.1	NA	NA	100.0
Benzoic acid	0.00020	1099	<0.1	NA	NA	100.0
bis(2-Ethylhexyl)phthalate	0.026	22	<0.1	NA	NA	100.0
Carbazole	0.00055	159	<0.1	NA	NA	100.0
Chrysene	0.0015	1.5	<0.1	NA	NA	100.0
Cyclohexanone	0.022	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0015	1.5	<0.1	NA	NA	100.0
Fluoranthene	0.000044	149	<0.1	NA	NA	100.0
Fluorene	0.0015	149	<0.1	NA	NA	100.0
Indeno(1,2,3-cd)pyrene	0.0015	1.5	<0.1	NA	NA	100.0
Naphthalene	0.0015	238	<0.1	NA	NA	100.0
N-nitrosodiphenylamine	0.0076	330	<0.1	NA	NA	100.0
Phenanthrene	0.0015	159	<0.1	NA	NA	100.0
Phenol	0.0013	3723	<0.1	NA	NA	100.0
Pyrene	0.000044	159	<0.1	NA	NA	100.0
<i>HAZARD INDEX</i>			0.0			
Pesticides and PCBs						
4,4'-DDD	0.0000011	5.1	<0.1	NA	NA	100.0
4,4'-DDE	0.0000011	3.2	<0.1	NA	NA	100.0
4,4'-DDT	0.0000011	1.8	<0.1	NA	NA	100.0
alpha-Chlordane	0.0000011	5.4	<0.1	NA	NA	100.0
gamma-Chlordane	0.0000011	5.4	<0.1	NA	NA	100.0
<i>HAZARD INDEX</i>			0.0			
Inorganics						
X Aluminum	1428	58	25	87.0	13.0	0.0
X Antimony	1.0	0.15	7	87.0	13.0	0.1
X Arsenic	116	0.15	775	87.0	13.0	0.0
X Barium	22	12	2	87.0	13.0	0.0
Beryllium	0.16	1.5	0.1	87.0	13.0	0.1
Cadmium	2.8	2.1	1	87.0	13.0	0.0
X Chromium	39	20	2	87.0	13.0	0.0
Cobalt	6.6	11	0.6	87.0	13.0	0.0
X Copper	59	33	2	87.0	13.0	0.0
Iron	22185	NA	NA	NA	NA	NA
X Lead	41	18	2	87.0	13.0	0.0
X Manganese	371	193	2	87.0	13.0	0.1
X Mercury	0.12	0.070	2	87.0	13.0	0.0
Nickel	4.6	88	<0.1	87.0	13.0	0.0
X Selenium	0.83	0.44	2	87.0	13.0	0.0
Silver	0.13	398	<0.1	87.0	13.0	0.1
X Thallium	1.7	0.16	10	87.0	13.0	0.0
X Vanadium	8.0	0.43	19	87.0	13.0	0.0
Zinc	575	352	2	87.0	13.0	0.0
Chromium VI	NA	7.2	<0.1	87.0	13.0	NA
<i>HAZARD INDEX</i>			853			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NA = Not Applicable

TABLE 25
HAZARD QUOTIENTS FOR SHREW - STATION HB03-3
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Volatile Organics						
1,1-Dichloroethane	0.00022	1679	<0.1	NA	NA	100.0
2-Butanone	0.00022	27	<0.1	NA	NA	100.0
Acetone	0.00055	3736	<0.1	NA	NA	100.0
Benzene	0.00022	31	<0.1	NA	NA	100.0
Carbon Disulfide	0.00022	277	<0.1	NA	NA	100.0
Vinyl Chloride	0.00022	0.37	<0.1	NA	NA	100.0
Xylene, m/p-	0.00044	2.5	<0.1	NA	NA	100.0
Xylene, o-	0.00022	2.5	<0.1	NA	NA	100.0
<i>HAZARD INDEX</i>			0.0			
Semivolatile Organics						
2-Methylphenol	0.0015	NA	NA	NA	NA	NA
Acenaphthene	0.0015	416	<0.1	NA	NA	100.0
Acenaphthylene	0.0015	159	<0.1	NA	NA	100.0
Anthracene	0.0015	1189	<0.1	NA	NA	100.0
Benzo(a)anthracene	0.0015	1.5	<0.1	NA	NA	100.0
Benzo(a)pyrene	0.0015	1.5	<0.1	NA	NA	100.0
Benzo(b)fluoranthene	0.0015	1.5	<0.1	NA	NA	100.0
Benzo(g,h,i)perylene	0.0015	159	<0.1	NA	NA	100.0
Benzo(k)fluoranthene	0.0015	1.5	<0.1	NA	NA	100.0
Benzoic acid	0.00020	1099	<0.1	NA	NA	100.0
bis(2-Ethylhexyl)phthalate	0.026	22	<0.1	NA	NA	100.0
Carbazole	0.00055	159	<0.1	NA	NA	100.0
Chrysene	0.0015	1.5	<0.1	NA	NA	100.0
Cyclohexanone	0.022	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0015	1.5	<0.1	NA	NA	100.0
Fluoranthene	0.000044	149	<0.1	NA	NA	100.0
Fluorene	0.0015	149	<0.1	NA	NA	100.0
Indeno(1,2,3-cd)pyrene	0.0015	1.5	<0.1	NA	NA	100.0
Naphthalene	0.0015	238	<0.1	NA	NA	100.0
N-nitrosodiphenylamine	0.0076	330	<0.1	NA	NA	100.0
Phenanthrene	0.0015	159	<0.1	NA	NA	100.0
Phenol	0.0013	3723	<0.1	NA	NA	100.0
Pyrene	0.000044	159	<0.1	NA	NA	100.0
<i>HAZARD INDEX</i>			0.0			
Pesticides and PCBs						
4,4'-DDD	0.0000011	5.1	<0.1	NA	NA	100.0
4,4'-DDE	0.0000011	3.2	<0.1	NA	NA	100.0
4,4'-DDT	0.0000011	1.8	<0.1	NA	NA	100.0
alpha-Chlordane	0.0000011	5.4	<0.1	NA	NA	100.0
gamma-Chlordane	0.0000011	5.4	<0.1	NA	NA	100.0
<i>HAZARD INDEX</i>			0.0			
Inorganics						
X Aluminum	1390	58	24	87.0	13.0	0.0
X Antimony	0.77	0.15	5	87.0	13.0	0.1
X Arsenic	51	0.15	339	87.0	13.0	0.0
Barium	16	12	1	87.0	13.0	0.1
Beryllium	0.16	1.5	0.1	87.0	13.0	0.1
Cadmium	1.5	2.1	0.7	87.0	13.0	0.0
Chromium	28	20	1	87.0	13.0	0.0
Cobalt	5.3	11	0.5	87.0	13.0	0.0
X Copper	56	33	2	87.0	13.0	0.0
Iron	9522	NA	NA	NA	NA	NA
X Lead	29	18	2	87.0	13.0	0.0
Manganese	246	193	1	87.0	13.0	0.1
X Mercury	0.16	0.070	2	87.0	13.0	0.0
Nickel	3.1	88	<0.1	87.0	13.0	0.0
Selenium	0.47	0.44	1	87.0	13.0	0.1
Silver	1.3	398	<0.1	87.0	13.0	0.0
X Thallium	0.62	0.16	4	87.0	13.0	0.1
X Vanadium	6.6	0.43	15	87.0	13.0	0.0
Zinc	184	352	0.5	87.0	13.0	0.0
Chromium VI	NA	7.2	<0.1	87.0	13.0	NA
<i>HAZARD INDEX</i>			400			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NA = Not Applicable

TABLE 26
HAZARD QUOTIENTS FOR SHREW - STATION HB04
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Volatile Organics						
1,1-Dichloroethane	0.00022	1679	<0.1	NA	NA	100.0
2-Butanone	0.00022	27	<0.1	NA	NA	100.0
Acetone	0.00055	3736	<0.1	NA	NA	100.0
Benzene	0.00022	31	<0.1	NA	NA	100.0
Carbon Disulfide	0.00022	277	<0.1	NA	NA	100.0
Vinyl Chloride	0.00022	0.37	<0.1	NA	NA	100.0
Xylene, m/p-	0.00044	2.5	<0.1	NA	NA	100.0
Xylene, o-	0.00022	2.5	<0.1	NA	NA	100.0
<i>HAZARD INDEX</i>			0.0			
Semivolatile Organics						
2-Methylphenol	0.0015	NA	NA	NA	NA	NA
Acenaphthene	0.0015	416	<0.1	NA	NA	100.0
Acenaphthylene	0.0015	159	<0.1	NA	NA	100.0
Anthracene	0.0015	1189	<0.1	NA	NA	100.0
Benzo(a)anthracene	0.0015	1.5	<0.1	NA	NA	100.0
Benzo(a)pyrene	0.0015	1.5	<0.1	NA	NA	100.0
Benzo(b)fluoranthene	0.0015	1.5	<0.1	NA	NA	100.0
Benzo(g,h,i)perylene	0.0015	159	<0.1	NA	NA	100.0
Benzo(k)fluoranthene	0.0015	1.5	<0.1	NA	NA	100.0
Benzoic acid	0.00020	1099	<0.1	NA	NA	100.0
bis(2-Ethylhexyl)phthalate	0.026	22	<0.1	NA	NA	100.0
Carbazole	0.00055	159	<0.1	NA	NA	100.0
Chrysene	0.0015	1.5	<0.1	NA	NA	100.0
Cyclohexanone	0.022	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0015	1.5	<0.1	NA	NA	100.0
Fluoranthene	0.000044	149	<0.1	NA	NA	100.0
Fluorene	0.0015	149	<0.1	NA	NA	100.0
Indeno(1,2,3-cd)pyrene	0.0015	1.5	<0.1	NA	NA	100.0
Naphthalene	0.0015	238	<0.1	NA	NA	100.0
N-nitrosodiphenylamine	0.0076	330	<0.1	NA	NA	100.0
Phenanthrene	0.0015	159	<0.1	NA	NA	100.0
Phenol	0.0013	3723	<0.1	NA	NA	100.0
Pyrene	0.000044	159	<0.1	NA	NA	100.0
<i>HAZARD INDEX</i>			0.0			
Pesticides and PCBs						
4,4'-DDD	0.0000011	5.1	<0.1	NA	NA	100.0
4,4'-DDE	0.0000011	3.2	<0.1	NA	NA	100.0
4,4'-DDT	0.0000011	1.8	<0.1	NA	NA	100.0
alpha-Chlordane	0.0000011	5.4	<0.1	NA	NA	100.0
gamma-Chlordane	0.0000011	5.4	<0.1	NA	NA	100.0
<i>HAZARD INDEX</i>			0.0			
Inorganics						
X Aluminim	490	58	8	87.0	13.0	0.0
X Antimony	0.11	0.15	0.7	86.5	12.9	0.6
X Arsenic	3.1	0.15	21	86.7	12.9	0.4
Barium	1.7	12	0.1	86.5	12.9	0.6
Beryllium	0.029	1.5	<0.1	86.8	12.9	0.3
Cadmium	0.069	2.1	<0.1	86.9	13.0	0.2
Chromium	3.7	20	0.2	87.0	13.0	0.1
Cobalt	0.40	11	<0.1	86.9	13.0	0.1
Copper	4.2	33	0.1	86.9	13.0	0.1
Iron	810	NA	NA	NA	NA	NA
Lead	4.7	18	0.3	87.0	13.0	0.0
Manganese	9.5	193	<0.1	85.3	12.7	2.0
Mercury	0.031	0.070	0.4	86.9	13.0	0.1
Nickel	0.79	88	<0.1	87.0	13.0	0.1
Selenium	0.080	0.44	0.2	86.7	12.9	0.4
Silver	0.0096	398	<0.1	86.2	12.9	0.9
Thallium	0.078	0.16	0.5	86.4	12.9	0.7
X Vanadium	1.2	0.43	3	86.9	13.0	0.1
Zinc	8.1	352	<0.1	86.2	12.9	0.9
Chromium VI	NA	7.2	<0.1	87.0	13.0	NA
<i>HAZARD INDEX</i>			35			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NA = Not Applicable

TABLE 27
HAZARD QUOTIENTS FOR SHREW - REFERENCE
MAXIMUM CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Volatile Organics						
1,1-Dichloroethane	0.00054	1679	<0.1	NA	79.5	20.5
2-Butanone	0.00074	27	<0.1	NA	25.2	74.8
Acetone	0.0017	3736	<0.1	NA	66.9	33.1
Benzene	0.00030	31	<0.1	NA	62.7	37.3
Carbon Disulfide	0.00011	277	<0.1	NA	NA	100.0
Vinyl Chloride	0.00011	0.37	<0.1	NA	NA	100.0
Xylene, m/p-	NA	2.5	NA	NA	NA	NA
Xylene, o-	0.00019	2.5	<0.1	NA	100.0	NA
<i>HAZARD INDEX</i>			0.0			
Semivolatile Organics						
2-Methylphenol	0.014	NA	NA	NA	NA	NA
Acenaphthene	0.018	416	<0.1	NA	96.9	3.1
Acenaphthylene	0.010	159	<0.1	NA	94.7	5.3
Anthracene	0.024	1189	<0.1	NA	97.7	2.3
Benzo(a)anthracene	0.073	1.5	<0.1	NA	99.3	0.7
Benzo(a)pyrene	0.068	1.5	<0.1	NA	99.2	0.8
Benzo(b)fluoranthene	0.12	1.5	<0.1	NA	99.6	0.4
Benzo(g,h,i)perylene	0.00055	159	<0.1	NA	NA	100.0
Benzo(k)fluoranthene	0.12	1.5	<0.1	NA	99.5	0.5
Benzoic acid	NA	1099	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.00055	22	<0.1	NA	NA	100.0
Carbazole	0.012	159	<0.1	NA	100.0	NA
Chrysene	0.00055	1.5	<0.1	NA	NA	100.0
Cyclohexanone	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0067	1.5	<0.1	NA	91.8	8.2
Fluoranthene	0.19	149	<0.1	NA	99.7	0.3
Fluorene	0.035	149	<0.1	NA	98.4	1.6
Indeno(1,2,3-cd)pyrene	0.022	1.5	<0.1	NA	97.4	2.6
Naphthalene	0.0070	238	<0.1	NA	92.1	7.9
N-nitrosodiphenylamine	0.014	330	<0.1	NA	95.9	4.1
Phenanthrene	0.15	159	<0.1	NA	99.6	0.4
Phenol	0.014	3723	<0.1	NA	95.9	4.1
Pyrene	0.14	159	<0.1	NA	99.6	0.4
<i>HAZARD INDEX</i>			0.3			
Pesticides and PCBs						
4,4'-DDD	0.0048	5.1	<0.1	NA	99.8	0.2
4,4'-DDE	0.00047	3.2	<0.1	NA	97.6	2.4
4,4'-DDT	0.0016	1.8	<0.1	NA	99.3	0.7
alpha-Chlordane	0.000071	5.4	<0.1	NA	92.2	7.8
gamma-Chlordane	0.000057	5.4	<0.1	NA	99.3	0.7
<i>HAZARD INDEX</i>			0.0			
Inorganics						
X Aluminum	1361	58	23	87.0	13.0	0.0
X Antimony	0.11	0.15	0.8	86.9	13.0	0.1
X Arsenic	3.9	0.15	26	87.0	13.0	0.0
Barium	8.3	12	0.7	86.9	13.0	0.1
Beryllium	0.11	1.5	<0.1	87.0	13.0	0.0
Cadmium	0.28	2.1	0.1	87.0	13.0	0.0
X Chromium	39	20	2	87.0	13.0	0.0
Cobalt	1.3	11	0.1	87.0	13.0	0.0
Copper	12	33	0.4	87.0	13.0	0.0
Iron	2305	NA	NA	NA	NA	NA
X Lead	55	18	3	87.0	13.0	0.0
Manganese	25	193	0.1	86.6	12.9	0.5
Mercury	0.068	0.070	1	87.0	13.0	0.0
Nickel	2.6	88	<0.1	87.0	13.0	0.0
Selenium	0.20	0.44	0.5	86.9	13.0	0.1
Silver	0.28	398	<0.1	87.0	13.0	0.0
Thallium	0.095	0.16	0.6	86.9	12.9	0.2
X Vanadium	14	0.43	33	87.0	13.0	0.0
Zinc	24	352	<0.1	87.0	13.0	0.0
Chromium VI	NA	7.2	<0.1	87.0	13.0	NA
X <i>HAZARD INDEX</i>			92			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NA = Not Applicable

TABLE 28. MAXIMUM EXPOSURE CALCULATIONS FOR MUSKRAT - STATION AR

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water	
Datasource:	AR	SW-03	Sitewide	Sitewide	NOAEL																
Volatile Organics																					
1,1-Dichloroethane	NA	NA	NA	NA	614	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
2-Butanone	NA	NA	NA	NA	9.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Acetone	NA	NA	NA	NA	1367	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Benzene	NA	NA	NA	NA	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Carbon Disulfide	NA	NA	NA	NA	101	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Vinyl Chloride	NA	NA	NA	NA	0.14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Xylene, m/p-	NA	NA	NA	NA	0.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Xylene, o-	NA	NA	NA	NA	0.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Semivolatile Organics																					
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Acenaphthene	NA	NA	0.028	NA	152	8.35E-04	NA	8.35E-04	NA	NA	8.35E-04	5E-06	NA	NA	NA	5E-06	100.0%	NA	NA	NA	
Acenaphthylene	NA	NA	0.0030	NA	58	8.95E-05	NA	8.95E-05	NA	NA	8.95E-05	2E-06	NA	NA	NA	2E-06	100.0%	NA	NA	NA	
Anthracene	NA	NA	0.023	NA	435	6.86E-04	NA	6.86E-04	NA	NA	6.86E-04	2E-06	NA	NA	NA	2E-06	100.0%	NA	NA	NA	
Benzo(a)anthracene	NA	NA	0.059	NA	0.57	1.76E-03	NA	1.76E-03	NA	NA	1.76E-03	3E-03	NA	NA	NA	3E-03	100.0%	NA	NA	NA	
Benzo(a)pyrene	NA	NA	0.025	NA	0.57	7.46E-04	NA	7.46E-04	NA	NA	7.46E-04	1E-03	NA	NA	NA	1E-03	100.0%	NA	NA	NA	
Benzo(b)fluoranthene	NA	NA	0.073	NA	0.57	2.18E-03	NA	2.18E-03	NA	NA	2.18E-03	4E-03	NA	NA	NA	4E-03	100.0%	NA	NA	NA	
Benzo(g,h,i)perylene	NA	NA	0.034	NA	58	1.01E-03	NA	1.01E-03	NA	NA	1.01E-03	2E-05	NA	NA	NA	2E-05	100.0%	NA	NA	NA	
Benzo(k)fluoranthene	NA	NA	0.019	NA	0.57	5.67E-04	NA	5.67E-04	NA	NA	5.67E-04	1E-03	NA	NA	NA	1E-03	100.0%	NA	NA	NA	
Benzoic acid	NA	NA	NA	NA	402	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	8.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Carbazole	NA	NA	NA	NA	58	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Chrysene	NA	NA	0.13	NA	0.57	3.88E-03	NA	3.88E-03	NA	NA	3.88E-03	7E-03	NA	NA	NA	7E-03	100.0%	NA	NA	NA	
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Dibenz(a,h)anthracene	NA	NA	0.0045	NA	0.57	1.34E-04	NA	1.34E-04	NA	NA	1.34E-04	2E-04	NA	NA	NA	2E-04	100.0%	NA	NA	NA	
Fluoranthene	NA	NA	0.45	NA	54	1.34E-02	NA	1.34E-02	NA	NA	1.34E-02	2E-04	NA	NA	NA	2E-04	100.0%	NA	NA	NA	
Fluorene	NA	NA	0.029	NA	54	8.65E-04	NA	8.65E-04	NA	NA	8.65E-04	2E-05	NA	NA	NA	2E-05	100.0%	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	NA	NA	0.034	NA	0.57	1.01E-03	NA	1.01E-03	NA	NA	1.01E-03	2E-03	NA	NA	NA	2E-03	100.0%	NA	NA	NA	
Naphthalene	NA	NA	0.021	NA	87	6.26E-04	NA	6.26E-04	NA	NA	6.26E-04	7E-06	NA	NA	NA	7E-06	100.0%	NA	NA	NA	
N-nitrosodiphenylamine	NA	NA	NA	NA	121	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Phenanthrene	NA	NA	0.18	NA	58	5.37E-03	NA	5.37E-03	NA	NA	5.37E-03	9E-05	NA	NA	NA	9E-05	100.0%	NA	NA	NA	
Phenol	NA	NA	NA	NA	1362	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2E-04	100.0%	NA	NA	NA	
Pyrene	NA	NA	0.31	NA	58	9.25E-03	NA	9.25E-03	NA	NA	9.25E-03	2E-04	NA	NA	NA	2E-04	100.0%	NA	NA	NA	
Pesticides and PCBs																					
4,4'-DDD	NA	NA	NA	NA	1.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
4,4'-DDE	NA	NA	NA	NA	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
4,4'-DDT	NA	NA	NA	NA	0.64	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
alpha-Chlordane	NA	NA	NA	NA	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
gamma-Chlordane	NA	NA	NA	NA	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Inorganics																					
X Aluminum	19900	285	300	840	42	8.95E+00	4.22E+02	4.31E+02	4.66E+01	2.88E-02	4.78E+02	2E-01	1E+01	7E-04	1E+01	1.9%	88.4%	9.8%	0.0%		
X Antimony		20	1.9	0.25	0.91	0.054	7.46E-03	4.58E-01	4.65E-01	4.76E-02	1.87E-04	5.13E-01	1E-01	8E+00	9E-03	9E+00	1.5%	89.2%	9.3%	0.0%	
X Arsenic		889	35	26	240	1.6	7.76E-01	1.21E+02	1.21E+02	2.08E+00	3.51E-03	1.24E+02	5E-01	8E+01	1E+00	2E-03	8E+01	0.6%	97.7%	1.7%	0.0%
X Barium		74	36	11	13	4.3	3.28E-01	6.54E+00	6.86E+00	1.74E-01	3.64E-03	7.04E-00	8E-02	2E+00	4E-02	8E-04	2E+00	4.7%	92.8%	2.5%	0.1%
X Beryllium			1.8	0.46	0.50	0.53	1.49E-02	2.51E-01	2.66E-01	4.22E-03	2.71E-01	5E-02	8E-03								

TABLE 29. MAXIMUM EXPOSURE CALCULATIONS FOR MUSKRAT - STATION BE-1

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	BE-1	No SW	Sitewide	Sitewide	NOAEL														
Volatile Organics																			
1,1-Dichloroethane	NA	NA	NA	NA	614	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2-Butanone	NA	NA	NA	NA	9.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Acetone	NA	NA	NA	NA	1367	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzene	NA	NA	NA	NA	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Carbon Disulfide	NA	NA	NA	NA	101	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Vinyl Chloride	NA	NA	NA	NA	0.14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Xylene, m/p-	NA	NA	NA	NA	0.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Xylene, o-	NA	NA	NA	NA	0.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Semivolatile Organics																			
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Acenaphthene	NA	NA	0.028	NA	152	8.35E-04	NA	8.35E-04	NA	8.35E-04	5E-06	NA	NA	NA	5E-06	100.0%	NA	NA	
Acenaphthylene	NA	NA	0.0030	NA	58	8.95E-05	NA	8.95E-05	NA	8.95E-05	2E-06	NA	NA	NA	2E-06	100.0%	NA	NA	
Anthracene	NA	NA	0.023	NA	435	6.86E-04	NA	6.86E-04	NA	6.86E-04	2E-06	NA	NA	NA	2E-06	100.0%	NA	NA	
Benzo(a)anthracene	NA	NA	0.059	NA	0.57	1.76E-03	NA	1.76E-03	NA	1.76E-03	3E-03	NA	NA	NA	3E-03	100.0%	NA	NA	
Benzo(a)pyrene	NA	NA	0.025	NA	0.57	7.46E-04	NA	7.46E-04	NA	7.46E-04	1E-03	NA	NA	NA	1E-03	100.0%	NA	NA	
Benzo(b)fluoranthene	NA	NA	0.073	NA	0.57	2.18E-03	NA	2.18E-03	NA	2.18E-03	4E-03	NA	NA	NA	4E-03	100.0%	NA	NA	
Benzo(g,h,i)perylene	NA	NA	0.034	NA	58	1.01E-03	NA	1.01E-03	NA	1.01E-03	2E-05	NA	NA	NA	2E-05	100.0%	NA	NA	
Benzo(k)fluoranthene	NA	NA	0.019	NA	0.57	5.67E-04	NA	5.67E-04	NA	5.67E-04	1E-03	NA	NA	NA	1E-03	100.0%	NA	NA	
Benzoic acid	NA	NA	NA	NA	402	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	8.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Carbazole	NA	NA	NA	NA	58	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Chrysene	NA	NA	0.13	NA	0.57	3.88E-03	NA	3.88E-03	NA	3.88E-03	7E-03	NA	NA	NA	7E-03	100.0%	NA	NA	
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dibenz(a,h)anthracene	NA	NA	0.0045	NA	0.57	1.34E-04	NA	1.34E-04	NA	1.34E-04	2E-04	NA	NA	NA	2E-04	100.0%	NA	NA	
Fluoranthene	NA	NA	0.45	NA	54	1.34E-02	NA	1.34E-02	NA	1.34E-02	2E-04	NA	NA	NA	2E-04	100.0%	NA	NA	
Fluorene	NA	NA	0.029	NA	54	8.65E-04	NA	8.65E-04	NA	8.65E-04	2E-05	NA	NA	NA	2E-05	100.0%	NA	NA	
Indeno(1,2,3-cd)pyrene	NA	NA	0.034	NA	0.57	1.01E-03	NA	1.01E-03	NA	1.01E-03	2E-03	NA	NA	NA	2E-03	100.0%	NA	NA	
Naphthalene	NA	NA	0.021	NA	87	6.26E-04	NA	6.26E-04	NA	6.26E-04	7E-06	NA	NA	NA	7E-06	100.0%	NA	NA	
N-nitrosodiphenylamine	NA	NA	NA	NA	121	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Phenanthrene	NA	NA	0.18	NA	58	5.37E-03	NA	5.37E-03	NA	5.37E-03	9E-05	NA	NA	NA	9E-05	100.0%	NA	NA	
Phenol	NA	NA	NA	NA	1362	NA	NA	NA	NA	NA	NA	NA	NA	NA	2E-04	100.0%	NA	NA	
Pyrene	NA	NA	0.31	NA	58	9.25E-03	NA	9.25E-03	NA	9.25E-03	2E-04	NA	NA	NA	2E-04	100.0%	NA	NA	
Pesticides and PCBs																			
4,4'-DDD	NA	NA	NA	NA	1.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4,4'-DDE	NA	NA	NA	NA	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4,4'-DDT	NA	NA	NA	NA	0.64	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
alpha-Chlordane	NA	NA	NA	NA	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
gamma-Chlordane	NA	NA	NA	NA	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Inorganics																			
X Aluminum	7330	NA	300	840	42	8.95E+00	4.22E+02	4.31E+02	1.72E+01	NA	4.48E+02	2E-01	1E+01	4E-01	2.0%	94.2%	3.8%	NA	
X Antimony	1.1	NA	0.25	0.91	0.054	7.46E-03	4.58E-01	4.65E-01	2.58E-03	NA	4.68E-01	1E-01	8E+00	5E-02	1.6%	97.9%	0.6%	NA	
X Arsenic	29	NA	26	240	1.6	7.76E-01	1.21E+02	1.21E+02	6.86E-02	NA	1.22E+02	5E-01	8E+01	4E-02	0.6%	99.3%	0.1%	NA	
X Barium	64	NA	11	13	4.3	3.28E-01	6.54E+00	6.86E+00	1.49E-01	NA	7.01E+00	8E-02	2E+00	3E-02	4.7%	93.2%	2.1%	NA	
X Beryllium	0.42	NA	0.50	0.50	0.53	1.49E-02	2.51E-01	2.66E-01	9.84E-04	NA	2.67E-01	3E-02	5E-01	5E-01	5.6%	94.1%	0.4%	NA	
X Cadmium	1.9	NA	0.57	3.9	0.78	1.70E-02	1.96E+00	1.98E+00	4.45E-03	NA	1.98E+00	2E-02	3E+00	6E-03	0.9%	98.9%	0.2%	NA	
X Chromium	35	NA	16	29	7.2	4.77E-01	1.46E+01	1.51E+01	8.18E-02	NA	1.51E+01	7E-02	2E+00	1E-02	3.2%	96.3%	0.5%	NA	
X Cobalt	6.9	NA	5.0	44	4.0	1.49E-01	2.21E+01	2.2											

TABLE 30. MAXIMUM EXPOSURE CALCULATIONS FOR MUSKRAT - STATION BE-2

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water	
Datasource:	BE-2	No SW	Sitewide	Sitewide	NOAEL															
Volatile Organics																				
1,1-Dichloroethane	NA	NA	NA	NA	614	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
2-Butanone	NA	NA	NA	NA	9.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Acetone	NA	NA	NA	NA	1367	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Benzene	NA	NA	NA	NA	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Carbon Disulfide	NA	NA	NA	NA	101	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Vinyl Chloride	NA	NA	NA	NA	0.14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Xylene, m/p-	NA	NA	NA	NA	0.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Xylene, o-	NA	NA	NA	NA	0.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Semivolatile Organics																				
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Acenaphthene	NA	NA	0.028	NA	152	8.35E-04	NA	8.35E-04	NA	8.35E-04	5E-06	NA	NA	NA	5E-06	100.0%	NA	NA		
Acenaphthylene	NA	NA	0.0030	NA	58	8.95E-05	NA	8.95E-05	NA	8.95E-05	2E-06	NA	NA	NA	2E-06	100.0%	NA	NA		
Anthracene	NA	NA	0.023	NA	435	6.86E-04	NA	6.86E-04	NA	6.86E-04	2E-06	NA	NA	NA	2E-06	100.0%	NA	NA		
Benzo(a)anthracene	NA	NA	0.059	NA	0.57	1.76E-03	NA	1.76E-03	NA	1.76E-03	3E-03	NA	NA	NA	3E-03	100.0%	NA	NA		
Benzo(a)pyrene	NA	NA	0.025	NA	0.57	7.46E-04	NA	7.46E-04	NA	7.46E-04	1E-03	NA	NA	NA	1E-03	100.0%	NA	NA		
Benzo(b)fluoranthene	NA	NA	0.073	NA	0.57	2.18E-03	NA	2.18E-03	NA	2.18E-03	4E-03	NA	NA	NA	4E-03	100.0%	NA	NA		
Benzo(g,h,i)perylene	NA	NA	0.034	NA	58	1.01E-03	NA	1.01E-03	NA	1.01E-03	2E-05	NA	NA	NA	2E-05	100.0%	NA	NA		
Benzo(k)fluoranthene	NA	NA	0.019	NA	0.57	5.67E-04	NA	5.67E-04	NA	5.67E-04	1E-03	NA	NA	NA	1E-03	100.0%	NA	NA		
Benzoic acid	NA	NA	NA	NA	402	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	8.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Carbazole	NA	NA	NA	NA	58	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Chrysene	NA	NA	0.13	NA	0.57	3.88E-03	NA	3.88E-03	NA	3.88E-03	7E-03	NA	NA	NA	7E-03	100.0%	NA	NA		
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Dibenz(a,h)anthracene	NA	NA	0.0045	NA	0.57	1.34E-04	NA	1.34E-04	NA	1.34E-04	2E-04	NA	NA	NA	2E-04	100.0%	NA	NA		
Fluoranthene	NA	NA	0.45	NA	54	1.34E-02	NA	1.34E-02	NA	1.34E-02	2E-04	NA	NA	NA	2E-04	100.0%	NA	NA		
Fluorene	NA	NA	0.029	NA	54	8.65E-04	NA	8.65E-04	NA	8.65E-04	2E-05	NA	NA	NA	2E-05	100.0%	NA	NA		
Indeno(1,2,3-cd)pyrene	NA	NA	0.034	NA	0.57	1.01E-03	NA	1.01E-03	NA	1.01E-03	2E-03	NA	NA	NA	2E-03	100.0%	NA	NA		
Naphthalene	NA	NA	0.021	NA	87	6.26E-04	NA	6.26E-04	NA	6.26E-04	7E-06	NA	NA	NA	7E-06	100.0%	NA	NA		
N-nitrosodiphenylamine	NA	NA	NA	NA	121	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Phenanthrene	NA	NA	0.18	NA	58	5.37E-03	NA	5.37E-03	NA	5.37E-03	9E-05	NA	NA	NA	9E-05	100.0%	NA	NA		
Phenol	NA	NA	NA	NA	1362	NA	NA	NA	NA	NA	NA	NA	NA	NA	2E-04	100.0%	NA	NA		
Pyrene	NA	NA	0.31	NA	58	9.25E-03	NA	9.25E-03	NA	9.25E-03	2E-04	NA	NA	NA	2E-04	100.0%	NA	NA		
Pesticides and PCBs																				
4,4'-DDD	NA	NA	NA	NA	1.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
4,4'-DDE	NA	NA	NA	NA	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
4,4'-DDT	NA	NA	NA	NA	0.64	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
alpha-Chlordane	NA	NA	NA	NA	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
gamma-Chlordane	NA	NA	NA	NA	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Inorganics																				
X Aluminum	15200	NA	300	840	42	8.95E+00	4.22E+02	4.31E+02	3.56E+01	NA	4.67E+02	2E-01	1E+01	9E-01	1.9%	90.5%	7.6%	NA		
X Antimony	3.1	NA	0.25	0.91	0.054	7.46E-03	4.58E-01	4.65E-01	7.26E-03	NA	4.72E-01	1E-01	8E+00	1E-01	NA	9E+00	1.6%	96.9%	1.5%	NA
X Arsenic	375	NA	26	240	1.6	7.76E-01	1.21E+02	1.21E+02	8.79E-01	NA	1.22E+02	5E-01	8E+01	5E-01	NA	8E+01	0.6%	98.6%	0.7%	NA
X Barium	79	NA	11	13	4.3	3.28E-01	6.54E+00	6.86E+00	1.86E-01	NA	7.05E-00	8E-02	2E+00	4E-02	NA	2E+00	4.7%	92.7%	2.6%	NA
X Beryllium	0.86	NA	0.50	0.50	0.53	1.49E-02	2.51E-01	2.66E-01	2.01E-03	NA	2.68E-01	3E-02	5E-01	4E-03	NA	5E-01	5.6%	93.7%	0.8%	NA
X Cadmium	5.0	NA	0.57	3.9	0.78	1.70E-02	1.96E+00	1.98E+00	1.17E-02	NA	1.99E+00	2E-02	3E+00	2E-02	NA	3E+00	0.9%	98.6%	0.6%	NA
X Chromium	75	NA	16	29	7.2	4.77E-01	1.46E+01	1.51E+01	1.75E-01	NA	1.52E+01	7E-02	2E+00	2E-02	NA	2E+00	3.1%	95		

TABLE 31. MAXIMUM EXPOSURE CALCULATIONS FOR MUSKRAT - STATION BE-3

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	BE-3	No SW	Sitewide	Sitewide	NOAEL															
Volatile Organics																				
1,1-Dichloroethane	NA	NA	NA	NA	614	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
2-Butanone	NA	NA	NA	NA	9.7	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Acetone	NA	NA	NA	NA	1367	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benzene	NA	NA	NA	NA	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Carbon Disulfide	NA	NA	NA	NA	101	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Vinyl Chloride	NA	NA	NA	NA	0.14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Xylene, m/p-	NA	NA	NA	NA	0.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Xylene, o-	NA	NA	NA	NA	0.91	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Semivolatile Organics																				
2-Methylphenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Acenaphthene	NA	NA	0.028	NA	152	8.35E-04	NA	8.35E-04	NA	NA	8.35E-04	5E-06	NA	NA	NA	5E-06	100.0%	NA	NA	NA
Acenaphthylene	NA	NA	0.0030	NA	58	8.95E-05	NA	8.95E-05	NA	NA	8.95E-05	2E-06	NA	NA	NA	2E-06	100.0%	NA	NA	NA
Anthracene	NA	NA	0.023	NA	435	6.86E-04	NA	6.86E-04	NA	NA	6.86E-04	2E-06	NA	NA	NA	2E-06	100.0%	NA	NA	NA
Benzo(a)anthracene	NA	NA	0.059	NA	0.57	1.76E-03	NA	1.76E-03	NA	NA	1.76E-03	3E-03	NA	NA	NA	3E-03	100.0%	NA	NA	NA
Benzo(a)pyrene	NA	NA	0.025	NA	0.57	7.46E-04	NA	7.46E-04	NA	NA	7.46E-04	1E-03	NA	NA	NA	1E-03	100.0%	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	0.073	NA	0.57	2.18E-03	NA	2.18E-03	NA	NA	2.18E-03	4E-03	NA	NA	NA	4E-03	100.0%	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	0.034	NA	58	1.01E-03	NA	1.01E-03	NA	NA	1.01E-03	2E-05	NA	NA	NA	2E-05	100.0%	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	0.019	NA	0.57	5.67E-04	NA	5.67E-04	NA	NA	5.67E-04	1E-03	NA	NA	NA	1E-03	100.0%	NA	NA	NA
Benzoic acid	NA	NA	NA	NA	402	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
bis(2-Ethylhexyl)phthalate	NA	NA	NA	NA	8.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Carbazole	NA	NA	NA	NA	58	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Chrysene	NA	NA	0.13	NA	0.57	3.88E-03	NA	3.88E-03	NA	NA	3.88E-03	7E-03	NA	NA	NA	7E-03	100.0%	NA	NA	NA
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dibenz(a,h)anthracene	NA	NA	0.0045	NA	0.57	1.34E-04	NA	1.34E-04	NA	NA	1.34E-04	2E-04	NA	NA	NA	2E-04	100.0%	NA	NA	NA
Fluoranthene	NA	NA	0.45	NA	54	1.34E-02	NA	1.34E-02	NA	NA	1.34E-02	2E-04	NA	NA	NA	2E-04	100.0%	NA	NA	NA
Fluorene	NA	NA	0.029	NA	54	8.65E-04	NA	8.65E-04	NA	NA	8.65E-04	2E-05	NA	NA	NA	2E-05	100.0%	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	0.034	NA	0.57	1.01E-03	NA	1.01E-03	NA	NA	1.01E-03	2E-03	NA	NA	NA	2E-03	100.0%	NA	NA	NA
Naphthalene	NA	NA	0.021	NA	87	6.26E-04	NA	6.26E-04	NA	NA	6.26E-04	7E-06	NA	NA	NA	7E-06	100.0%	NA	NA	NA
N-nitrosodiphenylamine	NA	NA	NA	NA	121	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Phenanthrene	NA	NA	0.18	NA	58	5.37E-03	NA	5.37E-03	NA	NA	5.37E-03	9E-05	NA	NA	NA	9E-05	100.0%	NA	NA	NA
Phenol	NA	NA	NA	NA	1362	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	2E-04	100.0%	NA	NA	NA
Pyrene	NA	NA	0.31	NA	58	9.25E-03	NA	9.25E-03	NA	NA	9.25E-03	2E-04	NA	NA	NA	2E-04	100.0%	NA	NA	NA
Pesticides and PCBs																				
4,4'-DDD	NA	NA	NA	NA	1.9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4,4'-DDE	NA	NA	NA	NA	1.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
4,4'-DDT	NA	NA	NA	NA	0.64	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
alpha-Chlordane	NA	NA	NA	NA	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
gamma-Chlordane	NA	NA	NA	NA	2.0	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Inorganics																				
X Aluminum	10100	NA	300	840	42	8.95E+00	4.22E+02	4.31E+02	2.37E+01	NA	4.55E+02	2E-01	1E+01	6E-01	NA	1E+01	2.0%	92.8%	5.2%	NA
X Antimony	1.5	NA	0.25	0.91	0.054	7.46E-03	4.58E-01	4.65E-01	3.51E-03	NA	4.69E-01	1E-01	8E+00	6E-02	NA	9E+00	1.6%	97.7%	0.8%	NA
X Arsenic	88	NA	26	240	1.6	7.76E-01	1.21E+02	1.21E+02	2.07E-01	NA	1.22E+02	5E-01	8E+01	1E-01	NA	8E+01	0.6%	99.2%	0.2%	NA
X Barium	67	NA	11	13	4.3	3.28E-01	6.54E+00	6.86E+00	1.57E-01	NA	7.02E+00	8E-02	2E+00	4E-02	NA	2E+00	4.7%	93.1%	2.2%	NA
X Beryllium	0.62	NA	0.50	0.50	0.53	1.49E-02	2.51E-01	2.66E-01	1.45E-03	NA	2.68E-01	3E-02	5E-01	3E-03	NA	5E-01	5.6%	9		

TABLE 32. MAXIMUM EXPOSURE CALCULATIONS FOR MUSKRAT - STATION HB01

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	HB01	HB01	MC-06	MC-06	NOAEL															
Volatile Organics																				
1,1-Dichloroethane	0.027	1.0	NA	NA	614	NA	NA	NA	6.33E-05	1.01E-04	1.64E-04	NA	NA	1E-07	2E-07	3E-07	NA	NA	38.5%	61.5%
2-Butanone	0.0030	1.0	NA	NA	9.7	NA	NA	NA	7.03E-06	1.01E-04	1.08E-04	NA	NA	7E-07	1E-05	1E-05	NA	NA	6.5%	93.5%
Acetone	0.031	2.5	NA	NA	1367	NA	NA	NA	7.26E-05	2.52E-04	3.25E-04	NA	NA	5E-08	2E-07	2E-07	NA	NA	22.4%	77.6%
Benzene	0.0030	1.0	NA	NA	11	NA	NA	NA	7.03E-06	1.01E-04	1.08E-04	NA	NA	6E-07	9E-06	9E-06	NA	NA	6.5%	93.5%
Carbon Disulfide	0.017	1.0	NA	NA	101	NA	NA	NA	3.98E-05	1.01E-04	1.41E-04	NA	NA	4E-07	1E-06	1E-06	NA	NA	28.3%	71.7%
Vinyl Chloride	0.0030	1.0	NA	NA	0.14	NA	NA	NA	7.03E-06	1.01E-04	1.08E-04	NA	NA	5E-05	7E-04	8E-04	NA	NA	6.5%	93.5%
Xylene, m/p-	0.0065	2.0	NA	NA	0.91	NA	NA	NA	1.52E-05	2.02E-04	2.17E-04	NA	NA	2E-05	2E-04	2E-04	NA	NA	7.0%	93.0%
Xylene, o-	0.0030	1.0	NA	NA	0.91	NA	NA	NA	7.03E-06	1.01E-04	1.08E-04	NA	NA	8E-06	1E-04	1E-04	NA	NA	6.5%	93.5%
Semivolatile Organics																				
2-Methylphenol	0.15	6.0	NA	NA	NA	NA	NA	NA	3.51E-04	6.05E-04	9.57E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.15	6.0	0.0035	NA	152	1.04E-04	NA	1.04E-04	3.51E-04	6.05E-04	1.06E-03	7E-07	NA	2E-06	4E-06	7E-06	9.8%	NA	33.1%	57.0%
Acenaphthylene	0.080	6.0	0.0035	NA	58	1.04E-04	NA	1.04E-04	1.87E-04	6.05E-04	8.97E-04	2E-06	NA	3E-06	1E-05	2E-05	11.6%	NA	20.9%	67.5%
Anthracene	0.26	6.0	0.0090	NA	435	2.68E-04	NA	2.68E-04	6.09E-04	6.05E-04	1.48E-03	6E-07	NA	1E-06	1E-06	3E-06	18.1%	NA	41.1%	40.8%
Benzo(a)anthracene	1.3	6.0	0.022	NA	0.57	6.56E-04	NA	6.56E-04	3.05E-03	6.05E-04	4.31E-03	1E-03	NA	5E-03	1E-03	8E-03	15.2%	NA	70.7%	14.1%
Benzo(a)pyrene	1.4	6.0	0.015	0.22	0.57	4.47E-04	1.12E-01	1.12E-01	3.28E-03	6.05E-04	1.16E-01	8E-04	2E-01	6E-03	1E-03	2E-01	0.4%	96.3%	2.8%	0.5%
Benzo(b)fluoranthene	2.1	6.0	0.027	0.16	0.57	8.05E-04	8.03E-02	8.11E-02	4.92E-03	6.05E-04	8.67E-02	1E-03	1E-01	9E-03	1E-03	2E-01	0.9%	92.7%	5.7%	0.7%
Benzo(g,h,i)perylene	0.76	6.0	0.014	NA	58	4.18E-04	NA	4.18E-04	1.78E-03	6.05E-04	2.80E-03	7E-06	NA	3E-05	1E-05	5E-05	14.9%	NA	63.5%	21.6%
Benzo(k)fluoranthene	1.7	6.0	0.0080	0.34	0.57	2.39E-04	1.70E-01	1.70E-01	3.98E-03	6.05E-04	1.75E-01	4E-04	3E-01	7E-03	1E-03	3E-01	0.1%	97.2%	2.3%	0.3%
Benzoic acid	NA	69	NA	NA	402	NA	NA	NA	6.96E-03	NA	NA	NA	NA	2E-05	2E-05	NA	NA	NA	NA	100.0%
bis(2-Ethylhexyl)phthalate	37	6.0	NA	NA	8.0	NA	NA	NA	8.67E-02	6.05E-04	8.73E-02	NA	NA	1E-02	8E-05	1E-02	NA	NA	99.3%	0.7%
Carbazole	0.16	2.5	NA	NA	58	NA	NA	NA	3.75E-04	2.52E-04	6.27E-04	NA	NA	6E-06	4E-06	1E-05	NA	NA	59.8%	40.2%
Chrysene	1.8	6.0	0.025	0.21	0.57	7.46E-04	1.06E-01	1.06E-01	4.22E-03	6.05E-04	1.11E-01	1E-03	2E-01	7E-03	1E-03	2E-01	0.7%	95.0%	3.8%	0.5%
Cyclohexanone	NA	290	NA	NA	NA	NA	NA	NA	2.93E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.21	6.0	0.0035	NA	0.57	1.04E-04	NA	1.04E-04	4.92E-04	6.05E-04	1.20E-03	2E-04	NA	9E-04	1E-03	2E-03	8.7%	NA	40.9%	50.4%
Fluoranthene	3.4	6.0	0.065	0.16	54	1.94E-03	8.08E-02	8.27E-02	7.97E-03	6.05E-04	9.13E-02	4E-05	1E-03	1E-04	1E-05	2E-03	2.1%	88.5%	8.7%	0.7%
Fluorene	0.15	6.0	0.0035	NA	54	1.04E-04	NA	1.04E-04	3.51E-04	6.05E-04	1.06E-03	2E-06	NA	6E-06	1E-05	2E-05	9.8%	NA	33.1%	57.0%
Indeno(1,2,3-cd)pyrene	0.94	6.0	0.015	0.40	0.57	4.47E-04	1.99E-01	1.99E-01	2.20E-03	6.05E-04	2.02E-01	8E-04	4E-01	4E-03	1E-03	4E-01	0.2%	98.4%	1.1%	0.3%
Naphthalene	0.11	6.0	0.0080	NA	87	2.39E-04	NA	2.39E-04	2.58E-04	6.05E-04	1.10E-03	3E-06	NA	3E-06	7E-06	1E-05	21.7%	NA	23.4%	54.9%
N-nitrosodiphenylamine	0.15	30	NA	NA	121	NA	NA	NA	3.51E-04	2.98E-03	3.33E-03	NA	NA	3E-06	2E-05	3E-05	NA	NA	10.6%	89.4%
Phenanthrene	1.0	6.0	0.021	0.27	58	6.26E-04	1.35E-01	1.36E-01	2.34E-03	6.05E-04	1.39E-01	1E-05	2E-03	4E-05	1E-05	2E-03	0.5%	97.4%	1.7%	0.4%
Phenol	0.15	7.0	NA	NA	1362	NA	NA	NA	3.51E-04	7.06E-04	1.06E-03	NA	NA	3E-07	5E-07	8E-07	NA	NA	33.2%	66.8%
Pyrene	2.6	6.0	0.048	0.16	58	1.43E-03	8.01E-02	8.15E-02	6.09E-03	6.05E-04	8.82E-02	2E-05	1E-03	1E-04	1E-05	2E-03	1.6%	90.8%	6.9%	0.7%
Pesticides and PCBs																				
4,4'-DDD	0.022	0.0044	NA	0.0011	1.9	NA	5.71E-04	5.71E-04	5.15E-05	4.44E-07	6.23E-04	NA	3E-04	3E-05	2E-07	3E-04	NA	91.7%	8.3%	0.1%
4,4'-DDE	0.0038	0.0044	NA	0.00017	1.2	NA	8.30E-05	8.30E-05	8.90E-06	4.44E-07	9.23E-05	NA	7E-05	8E-06	4E-07	8E-05	NA	89.9%		

TABLE 33. MAXIMUM EXPOSURE CALCULATIONS FOR MUSKRAT - STATION HB02-1

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water		
Datasource:	HB02-1	HB02-1	MC-08	MC-08	NOAEL																
Volatile Organics																					
1,1-Dichloroethane	0.0095	1.0	NA	NA	614	NA	NA	2.23E-05	1.01E-04	1.23E-04	NA	NA	4E-08	2E-07	2E-07	NA	NA	18.1%	81.9%		
2-Butanone	0.34	1.0	NA	NA	9.7	NA	NA	7.97E-04	1.01E-04	8.98E-04	NA	NA	8E-05	1E-05	9E-05	NA	NA	88.8%	11.2%		
Acetone	1.4	2.5	NA	NA	1367	NA	NA	3.28E-03	2.52E-04	3.53E-03	NA	NA	2E-06	2E-07	3E-06	NA	NA	92.9%	7.1%		
Benzene	0.0090	1.0	NA	NA	11	NA	NA	2.11E-05	1.01E-04	1.22E-04	NA	NA	2E-06	9E-06	1E-05	NA	NA	17.3%	82.7%		
Carbon Disulfide	0.013	1.0	NA	NA	101	NA	NA	3.05E-05	1.01E-04	1.31E-04	NA	NA	3E-07	1E-06	1E-06	NA	NA	23.2%	76.8%		
Semivolatile Organics																					
Vinyl Chloride	0.0095	1.0	NA	NA	0.14	NA	NA	2.23E-05	1.01E-04	1.23E-04	NA	NA	2E-04	7E-04	9E-04	NA	NA	18.1%	81.9%		
Xylene, m/p-	0.019	2.0	NA	NA	0.91	NA	NA	4.33E-05	2.02E-04	2.45E-04	NA	NA	5E-05	2E-04	3E-04	NA	NA	17.7%	82.3%		
Xylene, o-	0.0095	1.0	NA	NA	0.91	NA	NA	2.23E-05	1.01E-04	1.23E-04	NA	NA	2E-05	1E-04	1E-04	NA	NA	18.1%	81.9%		
2-Methylphenol	0.17	7.0	NA	NA	NA	NA	NA	3.98E-04	7.06E-04	1.10E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Acenaphthene	0.13	7.0	0.0015	NA	152	4.47E-05	NA	4.47E-05	3.05E-04	7.06E-04	1.06E-03	3E-07	NA	2E-06	5E-06	7E-06	NA	NA	28.9%	66.9%	
Acenaphthylene	0.17	7.0	0.0030	NA	58	8.95E-05	NA	8.95E-05	3.98E-04	7.06E-04	1.19E-03	2E-06	NA	7E-06	1E-05	2E-05	NA	NA	33.4%	59.1%	
Anthracene	0.22	7.0	0.0030	NA	435	8.95E-05	NA	8.95E-05	5.15E-04	7.06E-04	1.31E-03	2E-07	NA	1E-06	2E-06	3E-06	NA	NA	39.3%	53.9%	
Benzo(a)anthracene	1.1	7.0	0.0070	NA	0.57	2.09E-04	NA	2.09E-04	2.58E-03	7.06E-04	3.49E-03	4E-04	NA	5E-03	1E-03	6E-03	NA	NA	73.8%	20.2%	
Benzo(a)pyrene	1.4	7.0	0.0070	0.22	0.57	2.09E-04	1.12E-01	1.12E-01	3.28E-03	7.06E-04	1.16E-01	4E-04	2E-01	6E-03	1E-03	2E-01	0.2%	96.4%	2.8%	0.6%	
Benzo(b)fluoranthene	2.2	7.0	0.0070	0.17	0.57	2.09E-04	8.42E-02	8.44E-02	5.15E-03	7.06E-04	9.02E-02	4E-04	1E-01	9E-03	1E-03	2E-01	0.2%	93.3%	5.7%	0.8%	
Benzo(g,h,i)perylene	0.94	7.0	0.0060	NA	58	1.79E-04	NA	1.79E-04	2.20E-03	7.06E-04	3.09E-03	3E-06	NA	4E-05	1E-05	5E-05	NA	NA	71.3%	22.9%	
Benzo(k)fluoranthene	1.8	7.0	0.0040	0.36	0.57	1.19E-04	1.80E-01	1.80E-01	4.22E-03	7.06E-04	1.85E-01	2E-04	3E-01	7E-03	1E-03	3E-01	0.1%	97.3%	2.3%	0.4%	
Benzoic acid	NA	0.90	NA	NA	402	NA	NA	9.08E-05	9.08E-05	NA	NA	NA	2E-07	2E-07	NA	NA	NA	NA	100.0%		
bis(2-Ethylhexyl)phthalate	1.0	120	NA	NA	8.0	NA	NA	2.34E-03	1.21E-02	1.45E-02	NA	NA	3E-04	2E-03	2E-03	NA	NA	16.2%	83.8%		
Carbazole	0.40	2.5	NA	NA	58	NA	NA	9.37E-04	2.52E-04	1.19E-03	NA	NA	2E-05	4E-06	2E-05	NA	NA	78.8%	21.2%		
Chrysene	2.2	7.0	0.012	0.26	0.57	3.58E-04	1.29E-01	1.29E-01	5.15E-03	7.06E-04	1.35E-01	6E-04	2E-01	9E-03	1E-03	2E-01	0.3%	95.4%	3.8%	0.5%	
Cyclohexanone	NA	100	NA	NA	NA	NA	NA	1.01E-02	1.01E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Dibenz(a,h)anthracene	0.22	7.0	0.0015	NA	0.57	4.47E-05	NA	4.47E-05	5.15E-04	7.06E-04	1.27E-03	8E-05	NA	9E-04	1E-03	2E-03	3.5%	NA	40.7%	55.8%	
Fluoranthene	3.9	0.20	0.022	0.18	54	6.56E-04	9.26E-02	9.33E-02	9.14E-03	2.02E-05	1.02E-01	1E-05	2E-03	2E-04	4E-07	2E-03	0.6%	90.4%	8.9%	0.0%	
Fluorene	0.24	7.0	0.0015	NA	54	4.47E-05	NA	4.47E-05	5.62E-04	7.06E-04	1.31E-03	8E-07	NA	1E-05	1E-05	2E-05	3.4%	NA	42.8%	53.8%	
Indeno(1,2,3-cd)pyrene	1.2	7.0	0.0060	0.51	0.57	1.79E-04	2.54E-01	2.54E-01	2.81E-03	7.06E-04	2.58E-01	3E-04	4E-01	5E-03	1E-03	5E-01	0.1%	98.6%	1.1%	0.3%	
Naphthalene	0.19	7.0	0.0040	NA	87	1.19E-04	NA	1.19E-04	4.45E-04	7.06E-04	1.27E-03	1E-06	NA	5E-06	8E-06	1E-05	9.4%	NA	35.0%	55.6%	
N-nitrosodiphenylamine	0.17	35	NA	NA	121	NA	NA	3.98E-04	3.48E-03	3.88E-03	NA	NA	3E-06	3E-05	3E-05	NA	NA	10.3%	89.7%		
Phenanthrene	2.0	7.0	0.0070	0.54	58	2.09E-04	2.71E-01	2.71E-01	4.69E-03	7.06E-04	2.76E-01	4E-06	5E-03	8E-05	1E-05	5E-03	0.1%	98.0%	1.7%	0.3%	
Phenol	0.12	6.0	NA	NA	1362	NA	NA	2.81E-04	6.05E-04	8.87E-04	NA	NA	2E-07	4E-07	7E-07	NA	NA	31.7%	68.3%		
Pyrene	3.0	0.20	0.017	0.18	58	5.07E-04	9.24E-02	9.29E-02	7.03E-03	2.02E-05	1.00E-01	9E-06	2E-03	1E-04	3E-07	2E-03	0.5%	92.4%	7.0%	0.0%	
Pesticides and PCBs																					
4,4'-DDD	0.00043	0.0050	NA	NA	0.000022	1.9	NA	1.10E-05	1.10E-05	9.96E-07	5.04E-07	1.25E-05	NA	6E-06	5E-07	3E-07	NA	NA	88.0%	7.9%	4.0%
4,4'-DDE	0.00043	0.0050	NA	NA	0.000018	1.2	NA	9.28E-06	9.28E-06	9.96E-07	5.04E-07	1.08E-05	NA	8E-06	8E-07	4E-07	NA	NA	86.1%	9.2%	4.7%
4,4'-DDT	0.00043	0.0050	NA	NA	0.000068	0.64	NA	3.43E-05	3.43E-05	9.96E-0											

TABLE 34. MAXIMUM EXPOSURE CALCULATIONS FOR MUSKRAT - STATION HB03-1

Compound	C Sediment (mg/Kg)	C Water (ug/L)	C Animal (mg/Kg)	C Plant (mg/Kg)	TRV mg/Kg day	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water	
Datasource:	HB03-1	HB03-1	HBHA W	HBHA W	NOAEL															
Volatile Organics																				
1,1-Dichloroethane	0.0050	1.0	NA	NA	614	NA	NA	1.17E-05	1.01E-04	1.13E-04	NA	NA	2E-08	2E-07	NA	NA	10.4%	89.6%		
2-Butanone	0.0050	1.0	NA	NA	9.7	NA	NA	1.17E-05	1.01E-04	1.13E-04	NA	NA	1E-06	1E-05	NA	NA	10.4%	89.6%		
Acetone	0.058	2.5	NA	NA	1367	NA	NA	1.36E-04	2.52E-04	3.88E-04	NA	NA	1E-07	2E-07	3E-07	NA	35.0%	65.0%		
Benzene	0.0050	1.0	NA	NA	11	NA	NA	1.17E-05	1.01E-04	1.13E-04	NA	NA	1E-06	1E-05	NA	NA	10.4%	89.6%		
Carbon Disulfide	0.0050	1.0	NA	NA	101	NA	NA	1.17E-05	1.01E-04	1.13E-04	NA	NA	1E-07	1E-06	NA	NA	10.4%	89.6%		
Vinyl Chloride	0.0050	1.0	NA	NA	0.14	NA	NA	1.17E-05	1.01E-04	1.13E-04	NA	NA	9E-05	7E-04	8E-04	NA	NA	10.4%	89.6%	
Xylene, m/p-	0.0095	2.0	NA	NA	0.91	NA	NA	2.23E-05	2.02E-04	2.24E-04	NA	NA	2E-05	2E-04	2E-04	NA	9.9%	90.1%		
Xylene, o-	0.0050	1.0	NA	NA	0.91	NA	NA	1.17E-05	1.01E-04	1.13E-04	NA	NA	1E-05	1E-04	1E-04	NA	10.4%	89.6%		
Semivolatile Organics																				
2-Methylphenol	0.17	7.0	NA	NA	NA	NA	NA	3.98E-04	7.06E-04	1.10E-03	NA	NA	NA	NA	NA	NA	NA	NA		
Acenaphthene	0.17	7.0	0.028	NA	152	8.35E-04	NA	8.35E-04	7.06E-04	1.94E-03	5E-06	NA	3E-06	5E-06	1E-05	43.1%	NA	20.5%	36.4%	
Acenaphthylene	0.17	7.0	0.0030	NA	58	8.95E-05	NA	8.95E-05	7.06E-04	1.19E-03	2E-06	NA	7E-06	1E-05	2E-05	7.5%	NA	33.4%	59.1%	
Anthracene	0.17	7.0	0.023	NA	435	6.86E-04	NA	6.86E-04	7.06E-04	1.79E-03	2E-06	NA	9E-07	2E-06	4E-06	38.3%	NA	22.2%	39.4%	
Benzo(a)anthracene	0.46	7.0	0.059	NA	0.57	1.76E-03	NA	1.76E-03	1.08E-03	3.54E-03	3E-03	NA	2E-03	1E-03	6E-03	49.7%	NA	30.4%	19.9%	
Benzo(a)pyrene	0.69	7.0	0.025	0.11	0.57	7.46E-04	5.50E-02	5.58E-02	1.62E-03	7.06E-04	5.81E-02	1E-03	3E-03	1E-03	1E-01	1.3%	94.7%	2.8%	1.2%	
Benzo(b)fluoranthene	1.1	7.0	0.073	0.084	0.57	2.18E-03	4.21E-02	4.43E-02	2.58E-03	7.06E-04	4.75E-02	4E-03	7E-02	5E-03	1E-03	8E-02	4.6%	88.5%	5.4%	1.5%
Benzo(g,h,i)perylene	0.48	7.0	0.034	NA	58	1.01E-03	NA	1.01E-03	1.12E-03	7.06E-04	2.85E-03	2E-05	NA	2E-05	1E-05	5E-05	35.6%	NA	39.5%	24.8%
Benzo(k)fluoranthene	0.91	7.0	0.019	0.18	0.57	5.67E-04	9.11E-02	9.16E-02	2.13E-03	7.06E-04	9.45E-02	1E-03	2E-01	4E-03	1E-03	2E-01	0.6%	96.4%	2.3%	0.7%
Benzoic acid	NA	0.90	NA	NA	402	NA	NA	NA	9.08E-05	9.08E-05	NA	NA	2E-07	2E-07	NA	NA	NA	NA	100.0%	
bis(2-Ethylhexyl)phthalate	0.54	120	NA	NA	8.0	NA	NA	1.27E-03	1.21E-02	1.34E-02	NA	NA	2E-04	2E-03	2E-03	NA	NA	9.5%	90.5%	
Carbazole	0.17	2.5	NA	NA	58	NA	NA	3.98E-04	2.52E-04	6.51E-04	NA	NA	7E-06	4E-06	1E-05	NA	NA	61.2%	38.8%	
Chrysene	0.96	7.0	0.13	0.11	0.57	3.88E-03	5.63E-02	6.02E-02	2.25E-03	7.06E-04	6.31E-02	7E-03	1E-01	4E-03	1E-03	1E-01	6.1%	89.2%	3.6%	1.1%
Cyclohexanone	NA	100	NA	NA	NA	NA	NA	NA	1.01E-02	1.01E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dibenz(a,h)anthracene	0.11	7.0	0.0045	NA	0.57	1.34E-04	NA	1.34E-04	7.06E-04	1.10E-03	2E-04	NA	5E-04	1E-03	2E-03	12.2%	NA	23.5%	64.3%	
Fluoranthene	1.5	0.20	0.45	0.071	54	1.34E-02	3.56E-02	4.91E-02	3.51E-03	2.02E-05	5.26E-02	2E-04	7E-04	6E-05	4E-07	1E-03	25.5%	67.8%	6.7%	0.0%
Fluorene	0.17	7.0	0.029	NA	54	8.65E-04	NA	8.65E-04	3.98E-04	7.06E-04	1.97E-03	2E-05	NA	7E-06	1E-05	4E-05	43.9%	NA	20.2%	35.9%
Indeno(1,2,3-cd)pyrene	0.56	7.0	0.034	0.24	0.57	1.01E-03	1.19E-01	1.20E-01	1.31E-03	7.06E-04	1.22E-01	2E-03	2E-01	2E-03	1E-03	2E-01	0.8%	97.5%	1.1%	0.6%
Naphthalene	0.17	7.0	0.021	NA	87	6.26E-04	NA	6.26E-04	3.98E-04	7.06E-04	1.73E-03	7E-06	NA	5E-06	8E-06	2E-05	36.2%	NA	23.0%	40.8%
N-nitrosodiphenylamine	0.10	35	NA	NA	121	NA	NA	2.34E-04	3.48E-03	3.72E-03	NA	NA	2E-06	3E-05	3E-05	NA	NA	6.3%	93.7%	
Phenanthrene	0.53	7.0	0.18	0.14	58	5.37E-03	7.17E-02	7.71E-02	1.24E-03	7.06E-04	7.90E-02	9E-05	1E-03	2E-05	1E-03	6.8%	90.7%	1.6%	0.9%	
Phenol	0.17	6.0	NA	NA	1362	NA	NA	3.98E-04	6.05E-04	1.00E-03	NA	NA	3E-07	4E-07	7E-07	NA	NA	39.7%	60.3%	
Pyrene	1.3	0.20	0.31	0.080	58	9.25E-03	4.00E-02	4.93E-02	3.05E-03	2.02E-05	5.24E-02	2E-04	7E-04	5E-05	3E-07	9E-04	17.7%	76.5%	5.8%	0.0%
Pesticides and PCBs																				
4,4'-DDD	0.0032	0.0050	NA	0.00017	1.9	NA	8.31E-05	8.31E-05	7.50E-06	5.04E-07	9.11E-05	NA	4E-05	4E-06	3E-07	5E-05	NA	91.2%	8.2%	0.6%
4,4'-DDE	0.0027	0.0050	NA	0.00012	1.2	NA	5.89E-05	5.89E-05	6.33E-06	5.04E-07	6.58E-05	NA	5E-05	5E-06	4E-07	6E-05	NA	89.6%	9.6%	0.8%
4,4'-DDT	0.00042	0.0050	NA	0.000067	0.64	NA	3.39E-05	3.39E-05	9.84E-07	5.04E-07	3.54E-05	NA	5E-05	2E-06	8E-07	6E-05	NA	95.8%	2.8%	1.4%
alpha-Chlordane	0.00042	0.0050	NA	0.000043	2.0	NA	2.16E-05	2.16E-05	9.8											

TABLE 35. MAXIMUM EXPOSURE CALCULATIONS FOR MUSKRAT - STATION HB03-2

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	HB03-2	HB03-2	MC-11	MC-11	NOAEL															
Volatile Organics																				
1,1-Dichloroethane	0.0070	1.0	NA	NA	614	NA	NA	NA	1.64E-05	1.01E-04	1.17E-04	NA	NA	3E-08	2E-07	2E-07	NA	NA	14.0%	86.0%
2-Butanone	0.0070	1.0	NA	NA	9.7	NA	NA	NA	1.64E-05	1.01E-04	1.17E-04	NA	NA	2E-06	1E-05	1E-05	NA	NA	14.0%	86.0%
Acetone	0.23	2.5	NA	NA	1367	NA	NA	NA	5.39E-04	2.52E-04	7.91E-04	NA	NA	4E-07	2E-07	6E-07	NA	NA	68.1%	31.9%
Benzene	0.0070	1.0	NA	NA	11	NA	NA	NA	1.64E-05	1.01E-04	1.17E-04	NA	NA	1E-06	9E-06	1E-05	NA	NA	14.0%	86.0%
Carbon Disulfide	0.0070	1.0	NA	NA	101	NA	NA	NA	1.64E-05	1.01E-04	1.17E-04	NA	NA	2E-07	1E-06	1E-06	NA	NA	14.0%	86.0%
Vinyl Chloride	0.0070	1.0	NA	NA	0.14	NA	NA	NA	1.64E-05	1.01E-04	1.17E-04	NA	NA	1E-04	7E-04	9E-04	NA	NA	14.0%	86.0%
Xylene, m/p-	0.014	2.0	NA	NA	0.91	NA	NA	NA	3.16E-05	2.02E-04	2.33E-04	NA	NA	3E-05	2E-04	3E-04	NA	NA	13.6%	86.4%
Xylene, o-	0.0070	1.0	NA	NA	0.91	NA	NA	NA	1.64E-05	1.01E-04	1.17E-04	NA	NA	2E-05	1E-04	1E-04	NA	NA	14.0%	86.0%
Semivolatile Organics																				
2-Methylphenol	0.17	7.0	NA	NA	NA	NA	NA	NA	3.87E-04	7.06E-04	1.09E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.24	7.0	0.028	NA	152	8.35E-04	NA	8.35E-04	5.62E-04	7.06E-04	2.10E-03	5E-06	NA	4E-06	5E-06	1E-05	39.7%	NA	26.7%	33.6%
Acenaphthylene	0.098	7.0	0.0045	NA	58	1.34E-04	NA	1.34E-04	2.30E-04	7.06E-04	1.07E-03	2E-06	NA	4E-06	1E-05	2E-05	12.5%	NA	21.5%	66.0%
Anthracene	0.59	7.0	0.023	NA	435	6.86E-04	NA	6.86E-04	1.38E-03	7.06E-04	2.77E-03	2E-06	NA	3E-06	2E-06	6E-06	24.7%	NA	49.8%	25.5%
Benzo(a)anthracene	4.0	7.0	0.059	NA	0.57	1.76E-03	NA	1.76E-03	9.37E-03	7.06E-04	1.18E-02	3E-03	NA	2E-02	1E-03	2E-02	14.9%	NA	79.2%	6.0%
Benzo(a)pyrene	7.2	7.0	0.025	1.1	0.57	7.46E-04	5.74E-01	5.75E-01	1.69E-02	7.06E-04	5.93E-01	1E-03	1E+00	3E-02	1E-03	1E+00	0.1%	96.9%	2.8%	0.1%
Benzo(b)fluoranthene	10	7.0	0.073	0.76	0.57	2.18E-03	3.83E-01	3.85E-01	2.34E-02	7.06E-04	4.09E-01	4E-03	7E-01	4E-02	1E-03	7E-01	0.5%	93.6%	5.7%	0.2%
Benzo(g,h,i)perylene	3.7	7.0	0.034	NA	58	1.01E-03	NA	1.01E-03	8.67E-03	7.06E-04	1.04E-02	2E-05	NA	1E-04	1E-05	2E-04	9.8%	NA	83.4%	6.8%
Benzo(k)fluoranthene	5.9	7.0	0.019	1.2	0.57	5.67E-04	5.90E-01	5.91E-01	1.38E-02	7.06E-04	6.05E-01	1E-03	1E+00	2E-02	1E-03	1E+00	0.1%	97.5%	2.3%	0.1%
Benzoic acid	NA	0.90	NA	NA	402	NA	NA	NA	9.08E-05	9.08E-05	NA	NA	NA	2E-07	2E-07	NA	NA	NA	NA	100.0%
bis(2-Ethylhexyl)phthalate	1.1	120	NA	NA	8.0	NA	NA	NA	2.58E-03	1.21E-02	1.47E-02	NA	NA	3E-04	2E-03	2E-03	NA	NA	17.6%	82.4%
Carbazole	0.97	2.5	NA	NA	58	NA	NA	NA	2.27E-03	2.52E-04	2.52E-03	NA	NA	4E-05	4E-06	4E-05	NA	NA	90.0%	10.0%
Chrysene	9.9	7.0	0.13	1.2	0.57	3.88E-03	5.81E-01	5.84E-01	2.32E-02	7.06E-04	6.08E-01	7E-03	1E+00	4E-02	1E-03	1E+00	0.6%	95.4%	3.8%	0.1%
Cyclohexanone	NA	100	NA	NA	NA	NA	NA	NA	1.01E-02	NA	1.01E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	1.2	7.0	0.0045	NA	0.57	1.34E-04	NA	1.34E-04	2.81E-03	7.06E-04	3.65E-03	2E-04	NA	5E-03	1E-03	6E-03	3.7%	NA	77.0%	19.3%
Fluoranthene	16	0.20	0.45	0.76	54	1.34E-02	3.80E-01	3.93E-01	3.75E-02	2.02E-05	4.31E-01	2E-04	7E-03	7E-04	4E-07	8E-03	3.1%	88.2%	8.7%	0.0%
Fluorene	0.37	7.0	0.029	NA	54	8.65E-04	NA	8.65E-04	8.67E-04	7.06E-04	2.44E-03	2E-05	NA	2E-05	1E-05	4E-05	35.5%	NA	35.6%	29.0%
Indeno(1,2,3-cd)pyrene	4.9	7.0	0.034	2.1	0.57	1.01E-03	1.04E+00	1.04E+00	1.15E-02	7.06E-04	1.05E+00	2E-03	2E+00	2E-02	1E-03	2E+00	0.1%	98.7%	1.1%	0.1%
Naphthalene	0.12	7.0	0.021	NA	87	6.26E-04	NA	6.26E-04	2.81E-04	7.06E-04	1.61E-03	7E-06	NA	3E-06	8E-06	2E-05	38.8%	NA	17.4%	43.8%
N-nitrosodiphenylamine	0.17	35	NA	NA	121	NA	NA	NA	3.98E-04	3.48E-03	3.88E-03	NA	NA	3E-06	3E-05	3E-05	NA	NA	10.3%	89.7%
Phenanthrene	7.0	7.0	0.18	1.9	58	5.37E-03	9.47E-01	9.53E-01	1.64E-02	7.06E-04	9.70E-01	9E-05	2E-02	3E-04	1E-05	2E-02	0.6%	97.7%	1.7%	0.1%
Phenol	0.17	6.0	NA	NA	1362	NA	NA	NA	3.87E-04	6.05E-04	9.92E-04	NA	NA	3E-07	4E-07	7E-07	NA	NA	39.0%	61.0%
Pyrene	14	0.20	0.31	0.86	58	9.25E-03	4.31E-01	4.41E-01	3.28E-02	2.02E-05	4.73E-01	2E-04	7E-03	6E-04	3E-07	8E-03	2.0%	91.1%	6.9%	0.0%
Pesticides and PCBs																				
4,4'-DDD	0.00041	0.0050	NA	0.000021	1.9	NA	1.05E-05	1.05E-05	9.49E-07	5.04E-07	1.20E-05	NA	6E-06	5E-07	3E-07	6E-06	NA	87.9%	7.9%	4.2%
4,4'-DDE	0.00041	0.0050	NA	0.000018	1.2	NA	8.84E-06	8.84E-06	9.49E-07	5.04E-07	1.03E-05	NA	8E-06	8E-07	4E-07	9E-06</td				

TABLE 36. MAXIMUM EXPOSURE CALCULATIONS FOR MUSKRAT - STATION MC-09

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	SD-09	MC-09	MC-09	MC-09	NOAEL															
Volatile Organics																				
1,1-Dichloroethane	0.012	1.0	NA	NA	614	NA	NA	NA	2.81E-05	1.01E-04	1.29E-04	NA	NA	5E-08	2E-07	2E-07	NA	NA	21.8%	78.2%
2-Butanone	0.012	1.0	NA	NA	9.7	NA	NA	NA	2.81E-05	1.01E-04	1.29E-04	NA	NA	3E-06	1E-05	1E-05	NA	NA	21.8%	78.2%
Acetone	0.47	2.5	NA	NA	1367	NA	NA	NA	1.10E-03	2.52E-04	1.35E-03	NA	NA	8E-07	2E-07	1E-06	NA	NA	81.4%	18.6%
Benzene	0.041	1.0	NA	NA	11	NA	NA	NA	9.61E-05	1.01E-04	1.97E-04	NA	NA	8E-06	9E-06	2E-05	NA	NA	48.8%	51.2%
Carbon Disulfide	0.012	1.0	NA	NA	101	NA	NA	NA	2.81E-05	1.01E-04	1.29E-04	NA	NA	3E-07	1E-06	1E-06	NA	NA	21.8%	78.2%
Vinyl Chloride	0.012	1.0	NA	NA	0.14	NA	NA	NA	2.81E-05	1.01E-04	1.29E-04	NA	NA	2E-04	7E-04	9E-04	NA	NA	21.8%	78.2%
Xylene, m/p-	0.024	2.0	NA	NA	0.91	NA	NA	NA	5.51E-05	2.02E-04	2.57E-04	NA	NA	6E-05	2E-04	3E-04	NA	NA	21.4%	78.6%
Xylene, o-	0.012	1.0	NA	NA	0.91	NA	NA	NA	2.81E-05	1.01E-04	1.29E-04	NA	NA	3E-05	1E-04	1E-04	NA	NA	21.8%	78.2%
Semivolatile Organics																				
2-Methylphenol	0.32	2.0	NA	NA	NA	NA	NA	NA	7.50E-04	2.02E-04	9.52E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.32	2.0	0.0015	NA	152	4.47E-05	NA	4.47E-05	7.50E-04	2.02E-04	9.96E-04	3E-07	NA	5E-06	1E-06	7E-06	4.5%	NA	75.3%	20.3%
Acenaphthylene	0.32	2.0	0.0015	NA	58	4.47E-05	NA	4.47E-05	7.50E-04	2.02E-04	9.96E-04	8E-07	NA	1E-05	3E-06	2E-05	4.5%	NA	75.3%	20.3%
Anthracene	0.32	2.0	0.0030	NA	435	8.95E-05	NA	8.95E-05	7.50E-04	2.02E-04	1.04E-03	2E-07	NA	2E-06	5E-07	2E-06	8.6%	NA	72.0%	19.4%
Benzo(a)anthracene	0.75	2.0	0.0090	NA	0.57	2.68E-04	NA	2.68E-04	1.76E-03	2.02E-04	2.23E-03	5E-04	NA	3E-03	4E-04	4E-03	12.1%	NA	78.9%	9.1%
Benzo(a)pyrene	1.1	2.0	0.0060	0.17	0.57	1.79E-04	8.78E-02	8.79E-02	2.58E-03	2.02E-04	9.07E-02	3E-04	2E-01	5E-03	4E-04	2E-01	0.2%	96.7%	2.8%	0.2%
Benzo(b)fluoranthene	1.5	2.0	0.0080	0.11	0.57	2.39E-04	5.74E-02	5.76E-02	3.51E-03	2.02E-04	6.13E-02	4E-04	1E-01	6E-03	4E-04	1E-01	0.4%	93.6%	5.7%	0.3%
Benzo(g,h,i)perylene	0.72	2.0	0.0050	NA	58	1.49E-04	NA	1.49E-04	1.69E-03	2.02E-04	2.04E-03	3E-06	NA	3E-05	3E-06	4E-05	7.3%	NA	82.8%	9.9%
Benzo(k)fluoranthene	1.5	2.0	0.0040	0.30	0.57	1.19E-04	1.50E-01	3.51E-03	2.02E-04	1.54E-01	2E-04	3E-01	6E-03	4E-04	3E-01	0.1%	97.5%	2.3%	0.1%	
Benzoic acid	NA	NA	NA	NA	402	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	1.5	2.0	NA	NA	8.0	NA	NA	NA	3.51E-03	2.02E-04	3.72E-03	NA	NA	4E-04	3E-05	5E-04	NA	NA	94.6%	5.4%
Carbazole	0.32	2.0	NA	NA	58	NA	NA	NA	7.50E-04	2.02E-04	9.52E-04	NA	NA	1E-05	3E-06	2E-05	NA	NA	78.8%	21.2%
Chrysene	1.5	2.0	0.012	0.17	0.57	3.58E-04	8.80E-02	8.83E-02	3.51E-03	2.02E-04	9.20E-02	6E-04	2E-01	6E-03	4E-04	2E-01	0.4%	95.6%	3.8%	0.2%
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.18	2.0	0.0015	NA	0.57	4.47E-05	NA	4.47E-05	4.22E-04	2.02E-04	6.68E-04	8E-05	NA	7E-04	4E-04	1E-03	6.7%	NA	63.1%	30.2%
Fluoranthene	2.3	2.0	0.044	0.11	54	1.31E-03	5.46E-02	5.59E-02	5.39E-03	2.02E-04	6.15E-02	2E-05	1E-03	1E-04	4E-06	1E-03	2.1%	88.8%	8.8%	0.3%
Fluorene	0.32	2.0	0.0040	NA	54	1.19E-04	NA	1.19E-04	7.50E-04	2.02E-04	1.07E-03	2E-06	NA	1E-05	4E-06	2E-05	11.1%	NA	70.0%	18.8%
Indeno(1,2,3-cd)pyrene	0.85	2.0	0.0060	0.36	0.57	1.79E-04	1.80E-01	1.80E-01	1.99E-03	2.02E-04	1.82E-01	3E-04	3E-01	4E-03	4E-04	3E-01	0.1%	98.7%	1.1%	0.1%
Naphthalene	0.32	2.0	0.0080	NA	87	2.39E-04	NA	2.39E-04	7.50E-04	2.02E-04	1.19E-03	3E-06	NA	9E-06	2E-06	1E-05	20.0%	NA	63.0%	17.0%
N-nitrosodiphenylamine	0.32	2.0	NA	NA	121	NA	NA	NA	7.50E-04	2.02E-04	9.52E-04	NA	NA	6E-06	2E-06	8E-06	NA	NA	78.8%	21.2%
Phenanthrene	0.76	2.0	0.028	0.20	58	8.35E-04	1.03E-01	1.04E-01	1.78E-03	2.02E-04	1.06E-01	1E-05	2E-03	3E-05	3E-06	2E-03	0.8%	97.3%	1.7%	0.2%
Phenol	0.32	2.0	NA	NA	1362	NA	NA	NA	7.50E-04	2.02E-04	9.52E-04	NA	NA	6E-07	1E-07	7E-07	NA	NA	78.8%	21.2%
Pyrene	1.9	2.0	0.035	0.12	58	1.04E-03	5.85E-02	5.96E-02	4.45E-03	2.02E-04	6.42E-02	2E-05	1E-03	8E-05	3E-06	1E-03	1.6%	91.1%	6.9%	0.3%
Pesticides and PCBs																				
4,4'-DDD	0.00080	0.0050	NA	0.000041	1.9	NA	2.08E-05	2.08E-05	1.87E-06	5.04E-07	2.32E-05	NA	1E-05	1E-06	3E-07	1E-05	NA	89.7%	8.1%	2.2%
4,4'-DDE	0.00080	0.0050	NA	0.000035	1.2	NA	1.75E-05	1.75E-05	1.87E-06	5.04E-07	1.98E-05	NA	1E-05	2E-06	4E-07	2E-05	NA	88.0%	9.4%	2.5%
4,4'-DDT</td																				

TABLE 37. MAXIMUM EXPOSURE CALCULATIONS FOR MUSKRAT - STATION MC-13

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	SD-13	MC-13	MC-13	Sitewide	NOAEL															
Volatile Organics																				
1,1-Dichloroethane	0.0030	1.0	NA	NA	614	NA	NA	NA	7.03E-06	1.01E-04	1.08E-04	NA	NA	1E-08	2E-07	2E-07	NA	NA	6.5%	93.5%
2-Butanone	0.089	1.0	NA	NA	9.7	NA	NA	NA	2.09E-04	1.01E-04	3.09E-04	NA	NA	2E-05	1E-05	3E-05	NA	NA	67.4%	32.6%
Acetone	0.29	2.5	NA	NA	1367	NA	NA	NA	6.79E-04	2.52E-04	9.32E-04	NA	NA	5E-07	2E-07	7E-07	NA	NA	72.9%	27.1%
Benzene	0.0030	1.0	NA	NA	11	NA	NA	NA	7.03E-06	1.01E-04	1.08E-04	NA	NA	6E-07	9E-06	9E-06	NA	NA	6.5%	93.5%
Carbon Disulfide	0.0030	1.0	NA	NA	101	NA	NA	NA	7.03E-06	1.01E-04	1.08E-04	NA	NA	7E-08	1E-06	1E-06	NA	NA	6.5%	93.5%
Semivolatile Organics																				
2-Methylphenol	0.17	2.5	NA	NA	NA	NA	NA	NA	3.87E-04	2.52E-04	6.39E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.10	2.5	0.022	NA	152	6.56E-04	NA	6.56E-04	2.34E-04	2.52E-04	1.14E-03	4E-06	NA	2E-06	2E-06	8E-06	NA	NA	20.5%	22.1%
Acenaphthylene	0.11	2.5	0.0030	NA	58	8.95E-05	NA	8.95E-05	2.58E-04	2.52E-04	5.99E-04	2E-06	NA	4E-06	4E-06	1E-04	NA	NA	43.0%	42.1%
Anthracene	0.33	2.5	0.013	NA	435	3.88E-04	NA	3.88E-04	7.73E-04	2.52E-04	1.41E-03	9E-07	NA	2E-06	6E-07	3E-06	NA	NA	54.7%	17.8%
Benzo(a)anthracene	1.7	2.5	0.028	NA	0.57	8.35E-04	NA	8.35E-04	3.98E-03	2.52E-04	5.07E-03	1E-03	NA	7E-03	4E-04	9E-03	NA	NA	78.6%	5.0%
Benzo(a)pyrene	2.6	2.5	0.019	0.41	0.57	5.67E-04	2.07E-01	2.08E-01	6.09E-03	2.52E-04	2.14E-01	1E-03	4E-01	1E-02	4E-04	4E-01	0.3%	96.8%	2.8%	0.1%
Benzo(b)fluoranthene	3.8	2.5	0.026	0.29	0.57	7.76E-04	1.45E-01	1.46E-01	8.90E-03	2.52E-04	1.55E-01	1E-03	3E-01	2E-02	4E-04	3E-01	0.5%	93.6%	5.7%	0.2%
Benzo(g,h,i)perylene	1.5	2.5	0.017	NA	58	5.07E-04	NA	5.07E-04	3.51E-03	2.52E-04	4.27E-03	9E-06	NA	6E-05	4E-06	7E-05	11.9%	NA	82.2%	5.9%
Benzo(k)fluoranthene	2.3	2.5	0.0070	0.46	0.57	2.09E-04	2.30E-01	5.39E-03	2.52E-04	2.36E-01	4E-04	4E-01	1E-02	4E-04	4E-01	0.1%	97.5%	2.3%	0.1%	
Benzoic acid	NA	NA	NA	NA	402	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
bis(2-Ethylhexyl)phthalate	0.58	2.5	NA	NA	8.0	NA	NA	NA	1.36E-03	2.52E-04	1.61E-03	NA	NA	2E-04	3E-05	2E-04	NA	NA	84.3%	15.7%
Carbazole	0.32	2.5	NA	NA	58	NA	NA	NA	7.50E-04	2.52E-04	1.00E-03	NA	NA	1E-05	4E-06	2E-05	NA	NA	74.8%	25.2%
Chrysene	3.0	2.5	0.039	0.35	0.57	1.16E-03	1.76E-01	1.77E-01	7.03E-03	2.52E-04	1.84E-01	2E-03	3E-01	1E-02	4E-04	3E-01	0.6%	95.4%	3.8%	0.1%
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dibenz(a,h)anthracene	0.53	2.5	0.0030	NA	0.57	8.95E-05	NA	8.95E-05	1.24E-03	2.52E-04	1.58E-03	2E-04	NA	2E-03	4E-04	3E-03	5.7%	NA	78.4%	15.9%
Fluoranthene	4.7	2.5	0.090	0.22	54	2.68E-03	1.12E-01	1.14E-01	1.10E-02	2.52E-04	1.26E-01	5E-05	2E-03	2E-04	5E-06	2E-03	2.1%	88.9%	8.8%	0.2%
Fluorene	0.12	2.5	0.011	NA	54	3.28E-04	NA	3.28E-04	2.81E-04	2.52E-04	8.62E-04	6E-06	NA	5E-06	5E-06	2E-05	38.1%	NA	32.6%	29.3%
Indeno(1,2,3-cd)pyrene	2.2	2.5	0.016	0.93	0.57	4.77E-04	4.66E-01	4.66E-01	5.15E-03	2.52E-04	4.72E-01	8E-04	8E-01	9E-03	4E-04	8E-01	0.1%	98.8%	1.1%	0.1%
Naphthalene	0.090	2.5	0.015	NA	87	4.32E-04	NA	4.32E-04	2.11E-04	2.52E-04	8.96E-04	5E-06	NA	2E-06	3E-06	1E-05	48.3%	NA	23.5%	28.2%
N-nitrosodiphenylamine	0.17	2.5	NA	NA	121	NA	NA	NA	3.87E-04	2.52E-04	6.39E-04	NA	NA	3E-06	2E-06	5E-06	NA	NA	60.5%	39.5%
Phenanthrene	2.0	2.5	0.080	0.54	58	2.39E-03	2.71E-01	2.73E-01	4.69E-03	2.52E-04	2.78E-01	4E-05	5E-03	8E-05	4E-06	5E-03	0.9%	97.4%	1.7%	0.1%
Phenol	0.17	2.5	NA	NA	1362	NA	NA	NA	3.87E-04	2.52E-04	6.39E-04	NA	NA	3E-07	2E-07	5E-07	NA	NA	60.5%	39.5%
Pyrene	4.1	2.5	0.084	0.25	58	2.51E-03	1.26E-01	1.29E-01	9.61E-03	2.52E-04	1.39E-01	4E-05	2E-03	2E-04	4E-06	2E-03	1.8%	91.1%	6.9%	0.2%
Pesticides and PCBs																				
4,4'-DDD	0.022	0.0045	NA	0.0011	1.9	NA	5.71E-04	5.71E-04	5.15E-05	4.49E-07	6.23E-04	NA	3E-04	3E-05	2E-07	3E-04	NA	91.7%	8.3%	0.1%
4,4'-DDE	0.017	0.0045	NA	0.00074	1.2	NA	3.71E-04	3.71E-04	3.98E-05	4.49E-07	4.11E-04	NA	3E-04	3E-05	4E-07	4E-04	NA	90.2%	9.7%	0.1%
4,4'-DDT	0.013	0.0045	NA	0.0021	0.64	NA	1.05E-03	1.05E-03	3.05E-05	4.49E-07	1.08E-03	NA	2E-03	5E-05	7E-07	2E-03	NA	97.1%	2.8%	0.0%
alpha-Chlordane	0.00042	0.0045	NA	0.000043	2.0	NA	2.16E-05	2.16E-05	9.84E-07	4.49E-07	2.30E-05	NA	1E-05	5E-07	2E-07	1E-05	NA	93.8%	4.3%	1.9%
gamma-Chlordane	0.00042	0.0045	NA	0.000040	2.0	NA	2.03E-05	2.03E-05	9.84E-07	4.49E-07	2.17E-05	NA	1E-05	5E-07	2E-07	1E-05				

TABLE 38. MAXIMUM EXPOSURE CALCULATIONS FOR MUSKRAT - REFERENCE

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water	
Datasource:	Ref	Ref	Ref	Ref	NOAEL																
Volatile Organics																					
1,1-Dichloroethane	0.035	1.0	NA	NA	614	NA	NA	NA	8.08E-05	1.01E-04	1.82E-04	NA	NA	1E-07	2E-07	3E-07	NA	NA	44.5%	55.5%	
2-Butanone	0.68	2.5	NA	NA	9.7	NA	NA	NA	1.59E-03	2.52E-04	1.85E-03	NA	NA	2E-04	3E-05	2E-04	NA	NA	86.3%	13.7%	
Acetone	2.2	2.5	NA	NA	1367	NA	NA	NA	5.15E-03	2.52E-04	5.41E-03	NA	NA	4E-06	2E-07	4E-06	NA	NA	95.3%	4.7%	
Benzene	0.0040	1.0	NA	NA	11	NA	NA	NA	9.37E-06	1.01E-04	1.10E-04	NA	NA	8E-07	9E-06	1E-05	NA	NA	8.5%	91.5%	
Carbon Disulfide	0.0030	1.0	NA	NA	101	NA	NA	NA	7.03E-06	1.01E-04	1.08E-04	NA	NA	7E-08	1E-06	1E-06	NA	NA	6.5%	93.5%	
Vinyl Chloride	0.035	1.0	NA	NA	0.14	NA	NA	NA	8.08E-05	1.01E-04	1.82E-04	NA	NA	6E-04	7E-04	1E-03	NA	NA	44.5%	55.5%	
Xylene, m/p-	0.025	2.0	NA	NA	0.91	NA	NA	NA	5.86E-05	2.02E-04	2.60E-04	NA	NA	6E-05	2E-04	3E-04	NA	NA	22.5%	77.5%	
Xylene, o-	0.015	1.0	NA	NA	0.91	NA	NA	NA	3.51E-05	1.01E-04	1.36E-04	NA	NA	4E-05	1E-04	1E-04	NA	NA	25.8%	74.2%	
Semivolatile Organics																					
2-Methylphenol	1.6	2.5	NA	NA	NA	NA	NA	NA	3.63E-03	2.52E-04	3.88E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Acenaphthene	1.4	2.5	0.0040	NA	152	1.19E-04	NA	1.19E-04	3.28E-03	2.52E-04	3.65E-03	8E-07	NA	2E-05	2E-06	2E-05	3.3%	NA	89.8%	6.9%	
Acenaphthylene	0.80	2.5	0.0020	NA	58	5.97E-05	NA	5.97E-05	1.87E-03	2.52E-04	2.19E-03	1E-06	NA	3E-05	4E-06	4E-05	2.7%	NA	85.7%	11.5%	
Anthracene	1.9	2.5	0.0040	NA	435	1.19E-04	NA	1.19E-04	4.45E-03	2.52E-04	4.82E-03	3E-07	NA	1E-05	6E-07	1E-05	2.5%	NA	92.3%	5.2%	
Benzo(a)anthracene	5.9	2.5	0.0040	NA	0.57	1.19E-04	NA	1.19E-04	1.38E-02	2.52E-04	1.42E-02	2E-04	NA	2E-02	4E-04	3E-02	0.8%	NA	97.4%	1.8%	
X	Benzo(a)pyrene	5.5	2.5	0.0020	0.87	0.57	5.97E-05	4.39E-01	4.39E-01	1.29E-02	2.52E-04	4.52E-01	1E-04	8E-01	2E-02	4E-04	8E-01	0.0%	97.1%	2.9%	0.1%
Benzo(b)fluoranthene	10	2.5	0.0040	0.76	0.57	1.19E-04	3.83E-01	3.83E-01	2.34E-02	2.52E-04	4.06E-01	2E-04	7E-01	4E-02	4E-04	7E-01	0.0%	94.1%	5.8%	0.1%	
Benzo(g,h,i)perylene	2.2	2.5	0.0030	NA	58	8.95E-05	NA	8.95E-05	5.15E-03	2.52E-04	5.50E-03	2E-06	NA	9E-05	4E-06	9E-05	1.6%	NA	93.8%	4.6%	
Benzo(k)fluoranthene	9.6	2.5	0.0040	1.9	0.57	1.19E-04	9.61E-01	9.61E-01	2.25E-02	2.52E-04	9.83E-01	2E-04	4E-02	4E-04	2E+00	0.0%	97.7%	2.3%	0.0%		
Benzoic acid	NA	NA	NA	NA	402	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
bis(2-Ethylhexyl)phthalate	0.43	2.5	NA	NA	8.0	NA	NA	NA	1.01E-03	2.52E-04	1.26E-03	NA	NA	1E-04	3E-05	2E-04	NA	NA	80.0%	20.0%	
Carbazole	0.99	2.5	NA	NA	58	NA	NA	NA	2.32E-03	2.52E-04	2.57E-03	NA	NA	4E-05	4E-06	4E-05	NA	NA	90.2%	9.8%	
Chrysene	7.3	2.5	0.0060	0.85	0.57	1.79E-04	4.28E-01	4.28E-01	1.71E-02	2.52E-04	4.46E-01	3E-04	8E-01	3E-02	4E-04	8E-01	0.0%	96.1%	3.8%	0.1%	
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Dibenz(a,h)anthracene	1.1	2.5	0.0040	NA	0.57	1.19E-04	NA	1.19E-04	2.58E-03	2.52E-04	2.95E-03	2E-04	5E-03	4E-04	5E-03	4.0%	NA	87.4%	8.6%		
Fluoranthene	15	2.5	0.013	0.71	54	3.88E-04	3.56E-01	3.57E-01	3.51E-02	2.52E-04	3.92E-01	7E-06	7E-03	6E-04	5E-06	7E-03	0.1%	90.9%	9.0%	0.1%	
Fluorene	2.8	2.5	0.0040	NA	54	1.19E-04	NA	1.19E-04	6.56E-03	2.52E-04	6.93E-03	2E-06	NA	1E-04	5E-06	1E-04	1.7%	NA	94.6%	3.6%	
Indeno(1,2,3-cd)pyrene	3.7	2.5	0.0030	1.6	0.57	8.95E-05	7.83E-01	7.83E-01	8.67E-03	2.52E-04	7.92E-01	2E-04	1E+00	2E-02	4E-04	1E+00	0.0%	98.9%	1.1%	0.0%	
Naphthalene	0.52	2.5	0.014	NA	87	4.03E-04	NA	4.03E-04	1.22E-03	2.52E-04	1.87E-03	5E-06	NA	1E-05	3E-06	2E-05	21.5%	NA	65.0%	13.5%	
N-nitrosodiphenylamine	1.6	2.5	NA	NA	121	NA	NA	NA	3.63E-03	2.52E-04	3.88E-03	NA	NA	3E-05	2E-06	3E-05	NA	NA	93.5%	6.5%	
Phenanthrene	12	2.5	0.012	3.2	58	3.43E-04	1.62E+00	1.62E+00	2.81E-02	2.52E-04	1.65E+00	6E-06	3E-02	5E-04	4E-06	3E-02	0.0%	98.3%	1.7%	0.0%	
Phenol	1.6	2.5	NA	NA	1362	NA	NA	NA	3.63E-03	2.52E-04	3.88E-03	NA	NA	3E-06	2E-07	3E-06	NA	NA	93.5%	6.5%	
Pyrene	11	2.5	0.010	0.67	58	2.98E-04	3.39E-01	3.39E-01	2.58E-02	2.52E-04	3.65E-01	5E-06	6E-03	4E-04	4E-06	6E-03	0.1%	92.8%	7.1%	0.1%	
Pesticides and PCBs																					
4,4'-DDD	0.39	0.050	NA	0.020	1.9	NA	1.01E-02	1.01E-02	9.14E-04	5.04E-06	1.10E-02	NA	5E-03	5E-04	3E-06	6E-03	NA	91.7%	8.3%	0.0%	
4,4'-DDE	0.47	0.050	NA	0.020	1.2	NA	1.03E-02	1.03E-02	1.10E-03	5.04E-06	1.14E-02	NA	9E-03	9E-04	4E-06	1E-02	NA	90.3%	9.7%	0.0%	
4,4'-DDT	0.18	0.050	NA	0.029	0.64	NA	1.45E-02</														

TABLE 39. MAXIMUM EXPOSURE CALCULATIONS FOR OTTER - SITEWIDE

Compound	C Sediment (mg/Kg)	C Water (ug/L)	C Invertebrate (mg/Kg)	C fish (mg/Kg)	TRV mg/Kg day	DOSE invertebrate (mg/Kg BW day)	DOSE fish (i+f) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ invertebrate	HQ fish	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ invertebrate	% HQ fish	% HQ soil/ sediment	% HQ water	
Datasource:	Sitewide	Sitewide	Sitewide	Sitewide	NOAEL															
Volatile Organics																				
1,1-Dichloroethane	0.045	1.0	NA	NA	351	NA	NA	NA	2.25E-05	8.00E-05	1.03E-04	NA	NA	6E-08	2E-07	3E-07	NA	NA	22.0%	78.0%
2-Butanone	0.52	1.0	NA	NA	5.6	NA	NA	NA	2.58E-04	8.00E-05	3.38E-04	NA	NA	5E-05	1E-05	6E-05	NA	NA	76.3%	23.7%
Acetone	2.3	2.5	NA	NA	780	NA	NA	NA	1.13E-03	2.00E-04	1.33E-03	NA	NA	1E-06	3E-07	2E-06	NA	NA	84.9%	15.1%
Benzene	46	190	NA	NA	6.5	NA	NA	NA	2.28E-02	1.52E-02	3.80E-02	NA	NA	3E-03	2E-03	6E-03	NA	NA	59.9%	40.1%
Carbon Disulfide	0.060	1.0	NA	NA	58	NA	NA	NA	2.98E-05	8.00E-05	1.10E-04	NA	NA	5E-07	1E-06	2E-06	NA	NA	27.1%	72.9%
Vinyl Chloride	0.013	3.0	NA	NA	0.078	NA	NA	NA	6.25E-06	2.40E-04	2.46E-04	NA	NA	8E-05	3E-03	3E-03	NA	NA	2.5%	97.5%
Xylene, m/p-	2.4	2.0	NA	NA	0.52	NA	NA	NA	1.20E-03	1.60E-04	1.36E-03	NA	NA	2E-03	3E-04	4E-04	NA	NA	88.2%	11.8%
Xylene, o-	0.30	1.0	NA	NA	0.52	NA	NA	NA	1.48E-04	8.00E-05	2.28E-04	NA	NA	3E-04	2E-04				64.8%	35.2%
Semivolatile Organics																				
2-Methylphenol	0.38	7.0	NA	NA	NA	NA	NA	NA	1.90E-04	5.60E-04	7.50E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.80	7.0	0.028	NA	87	2.80E-03	NA	2.80E-03	3.98E-04	5.60E-04	3.76E-03	3E-05	NA	5E-06	6E-06	4E-05	74.5%	NA	10.6%	14.9%
Acenaphthylene	0.11	7.0	0.0030	NA	33	3.00E-04	NA	3.00E-04	5.50E-05	5.60E-04	9.15E-04	9E-06	NA	2E-06	2E-05	3E-05	32.8%	NA	6.0%	61.2%
Anthracene	1.2	7.0	0.023	NA	248	2.30E-03	NA	2.30E-03	6.10E-04	5.60E-04	3.47E-03	9E-06	NA	2E-06	2E-05	1E-05	66.3%	NA	17.6%	16.1%
Benzo(a)anthracene	4.9	7.0	0.059	NA	0.32	5.90E-03	NA	5.90E-03	2.43E-03	5.60E-04	8.89E-03	2E-02	NA	8E-03	3E-02	66.4%	NA	27.3%	6.3%	
Benzo(a)pyrene	7.2	7.0	0.025	NA	0.32	2.50E-03	NA	2.50E-03	3.60E-03	5.60E-04	6.66E-03	8E-03	NA	1E-02	2E-03	2E-02	37.5%	NA	54.1%	8.4%
Benzo(b)fluoranthene	10	7.0	0.073	NA	0.32	7.30E-03	NA	7.30E-03	5.10E-03	5.60E-04	1.30E-02	2E-02	NA	2E-02	2E-03	4E-02	56.3%	NA	39.4%	4.3%
Benzo(g,h,i)perylene	4.1	7.0	0.034	NA	33	3.40E-03	NA	3.40E-03	2.05E-03	5.60E-04	6.01E-03	1E-04	NA	6E-05	2E-05	2E-04	56.6%	NA	34.1%	9.3%
Benzo(k)fluoranthene	8.3	7.0	0.019	NA	0.32	1.90E-03	NA	1.90E-03	4.15E-03	5.60E-04	6.61E-03	6E-03	NA	1E-02	2E-03	2E-02	28.7%	NA	62.8%	8.5%
Benzoi acid	NA	69	NA	NA	229	NA	NA	NA	5.52E-03	5.52E-03	NA	NA	NA	2E-05	2E-05			NA	NA	100.0%
bis(2-Ethylhexyl)phthalate	37	120	NA	NA	4.6	NA	NA	NA	1.85E-02	9.60E-03	2.81E-02	NA	NA	4E-03	2E-03	6E-03	NA	NA	65.8%	34.2%
Carbazole	2.1	2.5	NA	NA	33	NA	NA	NA	1.05E-03	2.00E-04	1.25E-03	NA	NA	3E-05	6E-06	4E-05	NA	NA	84.0%	16.0%
Chrysene	10	7.0	0.13	NA	0.32	1.30E-02	NA	1.30E-02	5.13E-03	5.60E-04	1.87E-02	4E-02	NA	2E-02	2E-03	6E-02	69.6%	NA	27.4%	3.0%
Cyclohexanone	NA	290	NA	NA	NA	NA	NA	NA	NA	2.32E-02	2.32E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	1.2	7.0	0.0045	NA	0.32	4.50E-04	NA	4.50E-04	6.00E-04	5.60E-04	1.61E-03	1E-03	NA	2E-03	2E-03	5E-03	28.0%	NA	37.3%	34.8%
Fluoranthene	19	0.20	0.45	NA	31	4.50E-02	NA	4.50E-02	9.50E-03	1.60E-05	5.45E-02	1E-03	NA	3E-04	5E-07	2E-03	82.5%	NA	17.4%	0.0%
Fluorene	1.3	7.0	0.029	NA	31	2.90E-03	NA	2.90E-03	6.70E-04	5.60E-04	4.13E-03	9E-05	NA	2E-05	2E-05	1E-04	70.2%	NA	16.2%	13.6%
Indeno(1,2,3-cd)pyrene	5.2	7.0	0.034	NA	0.32	3.40E-03	NA	3.40E-03	2.60E-03	5.60E-04	6.56E-03	1E-02	NA	8E-03	2E-03	2E-02	51.8%	NA	39.6%	8.5%
Naphthalene	0.83	7.0	0.021	NA	50	2.10E-03	NA	2.10E-03	4.13E-04	5.60E-04	3.07E-03	4E-05	NA	8E-06	1E-05	6E-05	68.3%	NA	13.4%	18.2%
N-nitrosodiphenylamine	0.17	35	NA	NA	69	NA	NA	NA	8.50E-05	2.76E-03	2.85E-03	NA	NA	1E-06	4E-05	4E-05	NA	NA	3.0%	97.0%
Phenanthrene	10	7.0	0.18	NA	33	1.80E-02	NA	1.80E-02	5.23E-03	5.60E-04	2.38E-02	5E-04	NA	2E-04	2E-05	7E-04	75.7%	NA	22.0%	2.4%
Phenol	0.55	7.0	NA	NA	777	NA	NA	NA	2.75E-04	5.60E-04	8.35E-04	NA	NA	4E-07	7E-07	1E-06	NA	NA	32.9%	67.1%
Pyrene	14	0.20	0.31	NA	33	3.10E-02	NA	3.10E-02	7.00E-03	1.60E-05	3.80E-02	9E-04	NA	2E-04	5E-07	1E-03	81.5%	NA	18.4%	0.0%
Pesticides and PCBs																				
4,4'-DDD	0.022	0.0050	NA	NA	1.1	NA	NA	NA	1.10E-05	4.00E-07	1.14E-05	NA	NA	1E-05	4E-07	1E-05	NA	NA	96.5%	3.5%
4,4'-DDE	0.017	0.0050	NA	NA	0.67	NA	NA	NA	8.50E-06	4.00E-07	8.90E-06	NA	NA	1E-05	6E-07	1E-05	NA	NA	95.5%	4.5%
4,4'-DDT	0.013	0.0050	NA	NA	0.37	NA	NA	NA	6.50E-06	4.00E-07	6.90E-06	NA	NA	2E-05	1E-06	2E-05	NA	NA	94.2%	5.8%
alpha-Chlordane	0.092	0.0050	NA	NA	1.1	NA	NA	NA	4.60E-05	4.00E-07	4.64E-05	NA	NA	4E-05						

TABLE 40. MAXIMUM EXPOSURE CALCULATIONS FOR OTTER - REFERENCE

Compound	C Sediment (mg/Kg)	C Water (ug/L)	C Invertebrate (mg/Kg)	C fish (mg/Kg)	TRV mg/Kg day	DOSE invertebrate (mg/Kg BW day)	DOSE fish (mg/Kg BW day)	DOSE food (i+f) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ invertebrate	HQ fish	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ invertebrate	% HQ fish	% HQ soil/ sediment	% HQ water
Datasource:	Reference	Reference	Reference	Reference	NOAEL															
Volatile Organics																				
1,1-Dichloroethane	0.018	1.0	NA	NA	351	NA	NA	NA	9.00E-06	8.00E-05	8.90E-05	NA	NA	3E-08	2E-07	3E-07	NA	NA	10.1%	89.9%
2-Butanone	0.68	2.5	NA	NA	5.6	NA	NA	NA	3.40E-04	2.00E-04	5.40E-04	NA	NA	6E-05	4E-05	1E-04	NA	NA	63.0%	37.0%
Acetone	2.2	2.5	NA	NA	780	NA	NA	NA	1.10E-03	2.00E-04	1.30E-03	NA	NA	1E-06	3E-07	2E-06	NA	NA	84.6%	15.4%
Benzene	0.0040	1.0	NA	NA	6.5	NA	NA	NA	2.00E-06	8.00E-05	8.20E-05	NA	NA	3E-07	1E-05	1E-05	NA	NA	2.4%	97.6%
Carbon Disulfide	0.0030	1.0	NA	NA	58	NA	NA	NA	1.50E-06	8.00E-05	8.15E-05	NA	NA	3E-08	1E-06	1E-06	NA	NA	1.8%	98.2%
Vinyl Chloride	0.018	1.0	NA	NA	0.078	NA	NA	NA	9.00E-06	8.00E-05	8.90E-05	NA	NA	1E-04	1E-03	1E-03	NA	NA	10.1%	89.9%
Xylene, m/p-	0.025	2.0	NA	NA	0.52	NA	NA	NA	1.25E-05	1.60E-04	1.73E-04	NA	NA	2E-05	3E-04	3E-04	NA	NA	7.2%	92.8%
Xylene, o-	0.013	1.0	NA	NA	0.52	NA	NA	NA	6.25E-06	8.00E-05	8.63E-05	NA	NA	1E-05	2E-04	2E-04	NA	NA	7.2%	92.8%
Semivolatile Organics																				
2-Methylphenol	1.6	2.5	NA	NA	NA	NA	NA	NA	7.75E-04	2.00E-04	9.75E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.29	2.5	0.0040	NA	87	4.00E-04	NA	4.00E-04	1.45E-04	2.00E-04	7.45E-04	5E-06	NA	2E-06	9E-06	53.7%	NA	NA	19.5%	26.8%
Acenaphthylene	0.39	2.5	0.013	NA	33	1.30E-03	NA	1.30E-03	1.95E-04	2.00E-04	1.70E-03	4E-05	NA	6E-06	6E-06	76.7%	NA	NA	11.5%	11.8%
Anthracene	0.99	2.5	0.0080	NA	248	8.00E-04	NA	8.00E-04	4.95E-04	2.00E-04	1.50E-03	3E-06	NA	2E-06	8E-07	6E-06	53.5%	NA	33.1%	13.4%
Benzo(a)anthracene	4.9	2.5	0.015	NA	0.32	1.50E-03	NA	1.50E-03	2.45E-03	2.00E-04	4.15E-03	5E-03	NA	8E-03	6E-04	1E-02	36.1%	NA	59.0%	4.8%
Benzo(a)pyrene	5.1	2.5	0.0080	NA	0.32	8.00E-04	NA	8.00E-04	2.55E-03	2.00E-04	3.55E-03	2E-03	NA	8E-03	6E-04	1E-02	22.5%	NA	71.8%	5.6%
Benzo(b)fluoranthene	5.8	2.5	0.0080	NA	0.32	8.00E-04	NA	8.00E-04	2.90E-03	2.00E-04	3.90E-03	2E-03	NA	9E-03	6E-04	1E-02	20.5%	NA	74.4%	5.1%
Benzo(g,h,i)perylene	2.2	2.5	0.0080	NA	33	8.00E-04	NA	8.00E-04	1.10E-03	2.00E-04	2.10E-03	2E-05	NA	3E-05	6E-06	6E-05	38.1%	NA	52.4%	9.5%
Benzo(k)fluoranthene	6.7	2.5	0.0070	NA	0.32	7.00E-04	NA	7.00E-04	3.35E-03	2.00E-04	4.25E-03	2E-03	NA	1E-02	6E-04	1E-02	16.5%	NA	78.8%	4.7%
Benzoi acid	NA	NA	NA	NA	229	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	1.2	3.0	NA	NA	4.6	NA	NA	NA	6.00E-04	2.40E-04	8.40E-04	NA	NA	1E-04	5E-05	2E-04	NA	NA	71.4%	28.6%
Carbazole	0.52	2.5	NA	NA	33	NA	NA	NA	2.60E-04	2.00E-04	4.60E-04	NA	NA	8E-06	6E-06	1E-05	NA	NA	56.5%	43.5%
Chrysene	5.4	2.5	0.012	NA	0.32	1.20E-03	NA	1.20E-03	2.70E-03	2.00E-04	4.10E-03	4E-03	NA	8E-03	6E-04	1E-02	29.3%	NA	65.9%	4.9%
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dibenz(a,h)anthracene	1.1	2.5	0.0040	NA	0.32	4.00E-04	NA	4.00E-04	5.50E-04	2.00E-04	1.15E-03	1E-03	NA	2E-03	6E-04	4E-03	34.8%	NA	47.8%	17.4%
Fluoranthene	11	2.5	0.028	NA	31	2.80E-03	NA	2.80E-03	5.50E-03	2.00E-04	8.50E-03	9E-05	NA	2E-04	6E-06	3E-04	32.9%	NA	64.7%	2.4%
Fluorene	0.62	2.5	0.0070	NA	31	7.00E-04	NA	7.00E-04	3.10E-04	2.00E-04	1.21E-03	2E-05	NA	1E-05	6E-06	4E-05	57.9%	NA	25.6%	16.5%
Indeno(1,2,3-cd)pyrene	3.7	2.5	0.0080	NA	0.32	8.00E-04	NA	8.00E-04	1.85E-03	2.00E-04	2.85E-03	2E-03	NA	6E-03	6E-04	9E-03	28.1%	NA	64.9%	7.0%
Naphthalene	0.16	2.5	0.089	NA	50	8.90E-03	NA	8.90E-03	8.00E-05	2.00E-04	9.18E-03	2E-04	NA	2E-06	4E-06	2E-04	96.9%	NA	0.9%	2.2%
N-nitrosodiphenylamine	1.6	2.5	NA	NA	69	NA	NA	NA	7.75E-04	2.00E-04	9.75E-04	NA	NA	1E-05	3E-06	1E-05	NA	NA	79.5%	20.5%
Phenanthrene	4.5	2.5	0.023	NA	33	2.25E-03	NA	2.25E-03	2.25E-03	2.00E-04	4.70E-03	7E-05	NA	7E-05	6E-06	1E-04	47.9%	NA	47.9%	4.3%
Phenol	1.6	2.5	NA	NA	777	NA	NA	NA	7.75E-04	2.00E-04	9.75E-04	NA	NA	1E-06	3E-07	1E-06	NA	NA	79.5%	20.5%
Pyrene	8.1	2.5	0.021	NA	33	2.10E-03	NA	2.10E-03	4.05E-03	2.00E-04	6.35E-03	6E-05	NA	1E-04	6E-06	2E-04	33.1%	NA	63.8%	3.1%
Pesticides and PCBs																				
4,4'-DDD	0.097	0.050	NA	NA	1.1	NA	NA	NA	4.85E-05	4.00E-06	5.25E-05	NA	NA	5E-05	4E-06	5E-05	NA	NA	92.4%	7.6%
4,4'-DDE	0.051	0.050	NA	NA	0.67	NA	NA	NA	2.55E-05	4.00E-06	2.95E-05	NA	NA	4E-05	6E-06	4E-05	NA	NA	86.4%	13.6%
4,4'-DDT	0.030	0.050	NA	NA	0.37	NA	NA	NA	1.50E-05	4.00E-06	1.90E-05	NA	NA	4E-05	1E-05	5E-05	NA	NA	78.9%	21.1%
alpha-Chlordane	0.0084	0.025	NA	NA	1.1	NA	NA	NA	4.20E-06											

TABLE 41. MAXIMUM EXPOSURE CALCULATIONS FOR HERON - SITEWIDE

Compound	C Sediment (mg/Kg)	C Water (ug/L)	C Invertebrate (mg/Kg)	C Fish (mg/Kg)	TRV mg/Kg day	DOSE invertebrate (mg/Kg BW day)	DOSE fish (mg/Kg BW day)	DOSE prey (i+f) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ invertebrate	HQ fish	HQ sediment	HQ water	TOTAL HQ	% HQ invertebrate	% HQ fish	% HQ soil/ sediment	% HQ water
Datasource:	Sitewide	Sitewide	Sitewide	Sitewide	NOAEL															
Volatile Organics																				
1,1-Dichloroethane	0.027	1.0	NA	NA	764	NA	NA	NA	1.23E-05	9.80E-05	1.10E-04	NA	NA	2E-08	1E-07	1E-07	NA	NA	11.1%	88.9%
2-Butanone	0.34	1.0	NA	NA	12	NA	NA	NA	1.54E-04	9.80E-05	2.52E-04	NA	NA	1E-05	8E-06	2E-05	NA	NA	61.2%	38.8%
Acetone	1.4	2.5	NA	NA	1700	NA	NA	NA	6.36E-04	2.45E-04	8.81E-04	NA	NA	4E-07	1E-07	5E-07	NA	NA	72.2%	27.8%
Benzene	0.041	1.0	NA	NA	26	NA	NA	NA	1.86E-05	9.80E-05	1.17E-04	NA	NA	7E-07	4E-06	4E-06	NA	NA	16.0%	84.0%
Carbon Disulfide	0.017	1.0	NA	NA	126	NA	NA	NA	7.72E-06	9.80E-05	1.06E-04	NA	NA	6E-08	8E-07	8E-07	NA	NA	7.3%	92.7%
Vinyl Chloride	0.012	1.0	NA	NA	0.17	NA	NA	NA	5.45E-06	9.80E-05	1.03E-04	NA	NA	3E-05	6E-04	6E-04	NA	NA	5.3%	94.7%
Xylene, m/p-	0.024	2.0	NA	NA	2.1	NA	NA	NA	1.07E-05	1.96E-04	2.07E-04	NA	NA	5E-06	9E-05	1E-04	NA	NA	5.2%	94.8%
Xylene, o-	0.012	1.0	NA	NA	2.1	NA	NA	NA	5.45E-06	9.80E-05	1.03E-04	NA	NA	3E-06	5E-05	5E-05	NA	NA	5.3%	94.7%
Semivolatile Organics																				
2-Methylphenol	0.32	7.0	NA	NA	NA	NA	NA	NA	1.45E-04	6.86E-04	8.31E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.24	7.0	0.028	NA	NA	5.32E-03	NA	5.32E-03	1.09E-04	6.86E-04	6.11E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	0.11	7.0	0.0030	NA	NA	5.70E-04	NA	5.70E-04	4.99E-05	6.86E-04	1.31E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	0.59	7.0	0.023	NA	NA	4.37E-03	NA	4.37E-03	2.68E-04	6.86E-04	5.32E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	4.0	7.0	0.059	NA	1.3	1.12E-02	NA	1.12E-02	1.82E-03	6.86E-04	1.37E-02	9E-03	NA	1E-03	5E-04	1E-02	81.8%	NA	13.2%	5.0%
Benzo(a)pyrene	7.2	7.0	0.025	NA	1.3	4.75E-03	NA	4.75E-03	3.27E-03	6.86E-04	8.70E-03	4E-03	NA	3E-03	5E-04	7E-03	54.6%	NA	37.6%	7.9%
Benzo(b)fluoranthene	10	7.0	0.073	NA	1.3	1.39E-02	NA	1.39E-02	4.54E-03	6.86E-04	1.91E-02	1E-02	NA	3E-03	5E-04	1E-02	72.6%	NA	23.8%	3.6%
Benzo(g,h,i)perylene	3.7	7.0	0.034	NA	133	6.46E-03	NA	6.46E-03	1.68E-03	6.86E-04	8.83E-03	5E-05	NA	1E-05	5E-06	7E-05	73.2%	NA	19.0%	7.8%
Benzo(k)fluoranthene	5.9	7.0	0.019	NA	1.3	3.61E-03	NA	3.61E-03	2.68E-03	6.86E-04	6.97E-03	3E-03	NA	2E-03	5E-04	5E-03	51.8%	NA	38.4%	9.8%
Benzoic acid	NA	69	NA	NA	500	NA	NA	NA	6.76E-03	6.76E-03	NA	NA	NA	1E-05	1E-05	NA	NA	NA	NA	100.0%
bis(2-Ethylhexyl)phthalate	37	120	NA	NA	1.1	NA	NA	NA	1.68E-02	1.18E-02	2.86E-02	NA	NA	2E-02	1E-02	3E-02	NA	NA	58.8%	41.2%
Carbazole	0.97	2.5	NA	NA	133	NA	NA	NA	4.40E-04	2.45E-04	6.85E-04	NA	NA	3E-06	2E-06	5E-06	NA	NA	64.3%	35.7%
Chrysene	9.9	7.0	0.13	NA	1.3	2.47E-02	NA	2.47E-02	4.49E-03	6.86E-04	2.99E-02	2E-02	NA	3E-03	5E-04	2E-02	82.7%	NA	15.0%	2.3%
Cyclohexanone	NA	290	NA	NA	NA	NA	NA	NA	NA	2.84E-02	2.84E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	1.2	7.0	0.0045	NA	1.3	8.55E-04	NA	8.55E-04	5.45E-04	6.86E-04	2.09E-03	7E-04	NA	4E-04	5E-04	2E-03	41.0%	NA	26.1%	32.9%
Fluoranthene	16	0.20	0.45	NA	125	8.55E-02	NA	8.55E-02	7.26E-03	1.96E-05	9.28E-02	7E-04	NA	6E-05	2E-07	7E-04	92.1%	NA	7.8%	0.0%
Fluorene	0.37	7.0	0.029	NA	NA	5.51E-03	NA	5.51E-03	1.68E-04	6.86E-04	6.36E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	4.9	7.0	0.034	NA	1.3	6.46E-03	NA	6.46E-03	2.22E-03	6.86E-04	9.37E-03	5E-03	NA	2E-03	5E-04	7E-03	68.9%	NA	23.7%	7.3%
Naphthalene	0.19	7.0	0.021	NA	NA	3.99E-03	NA	3.99E-03	8.63E-05	6.86E-04	4.76E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	0.17	35	NA	NA	150	NA	NA	NA	7.72E-05	3.38E-03	3.46E-03	NA	NA	5E-07	2E-05	2E-05	NA	NA	2.2%	97.8%
Phenanthrene	7.0	7.0	0.18	NA	NA	3.42E-02	NA	3.42E-02	3.18E-03	6.86E-04	3.81E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	0.12	7.0	NA	NA	1694	NA	NA	NA	5.45E-05	6.86E-04	7.40E-04	NA	NA	3E-08	4E-07	4E-07	NA	NA	7.4%	92.6%
Pyrene	14	0.20	0.31	NA	133	5.89E-02	NA	5.89E-02	6.36E-03	1.96E-05	6.53E-02	4E-04	NA	5E-05	1E-07	5E-04	90.2%	NA	9.7%	0.0%
Low Molecular Weight PAHs	8.5	42	0.28	NA	40	5.40E-02	NA	5.40E-02	3.86E-03	4.12E-03	6.19E-02	1E-03	NA	1E-04	1E-04	2E-03	87.1%	NA	6.2%	6.6%
Pesticides and PCBs																				
4,4'-DDD	0.022	0.0050	NA	NA	4.3	NA	NA	NA	9.99E-06	4.90E-07	1.05E-05	NA	NA	2E-06	1E-07	2E-06	NA	NA	95.3%	4.7%
4,4'-DDE	0.017	0.0050	NA	NA	2.7	NA	NA	NA	7.72E-06	4.90E-07	8.21E-06	NA	NA	3E-06	2E-07	3E-06	NA	NA	94.0%	6.0%
4,4'-DDT	0.013	0.0050	NA	NA	0.0028	NA	NA	NA	5.90E-06	4.90E-07	6.39E-06	NA	NA	2E-03	2E-04	2E-03	NA	NA	92.3%	7.7

TABLE 42. MAXIMUM EXPOSURE CALCULATIONS FOR HERON - REFERENCE

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Invertebrate (mg/Kg)	C_Fish (mg/Kg)	TRV mg/Kg day	DOSE invertebrate (mg/Kg BW day)	DOSE fish (mg/ Kg BW day)	DOSE prey (i+f) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ invertebrate	HQ fish	HQ sediment	HQ water	TOTAL HQ	% HQ invertebrate	% HQ fish	% HQ soil/ sediment	% HQ water	
Datasource:	Reference	Reference	Reference	Reference	NOAEL																
Volatile Organics																					
1,1-Dichloroethane	0.035	1.0	NA	NA	764	NA	NA	NA	1.57E-05	9.80E-05	1.14E-04	NA	NA	2E-08	1E-07	1E-07	NA	NA	13.8%	86.2%	
2-Butanone	0.68	2.5	NA	NA	12	NA	NA	NA	3.09E-04	2.45E-04	5.54E-04	NA	NA	3E-05	2E-05	5E-05	NA	NA	55.8%	44.2%	
Acetone	2.2	2.5	NA	NA	1700	NA	NA	NA	9.99E-04	2.45E-04	1.24E-03	NA	NA	6E-07	1E-07	7E-07	NA	NA	80.3%	19.7%	
Benzene	0.0040	1.0	NA	NA	26	NA	NA	NA	1.82E-06	9.80E-05	9.98E-05	NA	NA	7E-08	4E-06	4E-06	NA	NA	1.8%	98.2%	
Carbon Disulfide	0.0030	1.0	NA	NA	126	NA	NA	NA	1.36E-06	9.80E-05	9.94E-05	NA	NA	1E-08	8E-07	8E-07	NA	NA	1.4%	98.6%	
Semivolatile Organics																					
2-Methylphenol	1.6	2.5	NA	NA	NA	NA	NA	NA	7.04E-04	2.45E-04	9.49E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Acenaphthene	1.4	2.5	0.0040	NA	NA	7.60E-04	NA	7.60E-04	6.36E-04	2.45E-04	1.64E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Acenaphthylene	0.80	2.5	0.0020	NA	NA	3.80E-04	NA	3.80E-04	3.63E-04	2.45E-04	9.88E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Anthracene	1.9	2.5	0.0040	NA	NA	7.60E-04	NA	7.60E-04	8.63E-04	2.45E-04	1.87E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Benz(a)anthracene	5.9	2.5	0.0040	NA	1.3	7.60E-04	NA	7.60E-04	2.68E-03	2.45E-04	3.68E-03	6E-04	NA	2E-03	2E-04	3E-03	20.6%	NA	72.7%	6.7%	
Benzo(a)pyrene	5.5	2.5	0.0020	NA	1.3	3.80E-04	NA	3.80E-04	2.50E-03	2.45E-04	3.12E-03	3E-04	NA	2E-03	2E-04	2E-03	12.2%	NA	80.0%	7.8%	
Benzo(b)fluoranthene	10	2.5	0.0040	NA	1.3	7.60E-04	NA	7.60E-04	4.54E-03	2.45E-04	5.55E-03	6E-04	NA	3E-03	2E-04	4E-03	13.7%	NA	81.9%	4.4%	
Benzo(g,h,i)perylene	2.2	2.5	0.0030	NA	133	5.70E-04	NA	5.70E-04	9.99E-04	2.45E-04	1.81E-03	4E-06	NA	7E-06	2E-06	1E-05	31.4%	NA	55.1%	13.5%	
Benzo(k)fluoranthene	9.6	2.5	0.0040	NA	1.3	7.60E-04	NA	7.60E-04	4.36E-03	2.45E-04	5.36E-03	6E-04	NA	3E-03	2E-04	4E-03	14.2%	NA	81.3%	4.6%	
Benzoic acid	NA	NA	NA	NA	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
bis(2-Ethylhexyl)phthalate	0.43	2.5	NA	NA	1.1	NA	NA	NA	1.95E-04	2.45E-04	4.40E-04	NA	NA	2E-04	2E-04	4E-04	NA	NA	44.3%	55.7%	
Carbazole	0.99	2.5	NA	NA	133	NA	NA	NA	4.49E-04	2.45E-04	6.94E-04	NA	NA	3E-06	2E-06	5E-06	NA	NA	64.7%	35.3%	
Chrysene	7.3	2.5	0.0060	NA	1.3	1.14E-03	NA	1.14E-03	3.31E-03	2.45E-04	4.70E-03	9E-04	NA	3E-03	2E-04	4E-03	24.3%	NA	70.5%	5.2%	
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dibenz(a,h)anthracene	1.1	2.5	0.0040	NA	1.3	7.60E-04	NA	7.60E-04	4.99E-04	2.45E-04	1.50E-03	6E-04	NA	4E-04	2E-04	1E-03	50.5%	NA	33.2%	16.3%	
Fluoranthene	15	2.5	0.013	NA	125	2.47E-03	NA	2.47E-03	6.81E-03	2.45E-04	9.53E-03	2E-05	NA	5E-05	2E-06	8E-05	25.9%	NA	71.5%	2.6%	
Fluorene	2.8	2.5	0.0040	NA	NA	7.60E-04	NA	7.60E-04	1.27E-03	2.45E-04	2.28E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Indeno(1,2,3-cd)pyrene	3.7	2.5	0.0030	NA	1.3	5.70E-04	NA	5.70E-04	1.68E-03	2.45E-04	2.49E-03	4E-04	NA	1E-03	2E-04	2E-03	22.8%	NA	67.3%	9.8%	
Naphthalene	0.52	2.5	0.014	NA	NA	2.57E-03	NA	2.57E-03	2.36E-04	2.45E-04	3.05E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	
N-nitrosodiphenylamine	1.6	2.5	NA	NA	150	NA	NA	NA	7.04E-04	2.45E-04	9.49E-04	NA	NA	5E-06	2E-06	6E-06	NA	NA	74.2%	25.8%	
Phenanthrene	12	2.5	0.012	NA	NA	2.19E-03	NA	2.19E-03	5.45E-03	2.45E-04	7.88E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	1.6	2.5	NA	NA	1694	NA	NA	NA	7.04E-04	2.45E-04	9.49E-04	NA	NA	4E-07	1E-07	6E-07	NA	NA	74.2%	25.8%	
Pyrene	11	2.5	0.010	NA	133	1.90E-03	NA	1.90E-03	4.99E-03	2.45E-04	7.14E-03	1E-05	NA	4E-05	2E-06	5E-05	26.6%	NA	70.0%	3.4%	
Low Molecular Weight PAHs	19	15	0.039	NA	40	7.41E-03	NA	7.41E-03	8.82E-03	1.47E-03	1.77E-02	2E-04	NA	2E-04	4E-05	4E-04	41.9%	NA	49.8%	8.3%	
Pesticides and PCBs																					
4,4'-DDD	0.39	0.050	NA	NA	4.3	NA	NA	NA	1.77E-04	4.90E-06	1.82E-04	NA	NA	4E-05	1E-06	4E-05	NA	NA	97.3%	2.7%	
4,4'-DDE	0.47	0.050	NA	NA	2.7	NA	NA	NA	2.13E-04	4.90E-06	2.18E-04	NA	NA	8E-05	2E-06	8E-05	NA	NA	97.8%	2.2%	
4,4'-DDT	0.18	0.050	NA	NA	0.0028	NA	NA	NA	8.17E-05	4.90E-06	8.66E-05	NA	NA	3E-02	2E-03	3E-02	NA	NA	94.3%	5.7%	
alpha-Chlordane	0.0084	0.025	NA	NA	2.1	NA	NA	NA	3.81E-06	2.45E-06	6.26E-06	NA	NA	2E-06	1E-06	3E-06	NA	NA	60.9%	39.1%	
gamma-Chlordane	0.0046	0.0017	NA	NA	2.1	NA	NA	NA	2.09E-06	1.67E-07	2.26E-06	NA	NA	1E-06	8E-08	1E-06	NA	NA	92.6%	7.4%	
Inorganics																					
Aluminum	14300	2500	130	5.0	110	1.36E+01	4.28E-01	1.40E+01	6.49E+00												

TABLE 43. MAXIMUM EXPOSURE CALCULATIONS FOR MALLARD - HBHA WETLAND

Compound	C _{Sediment} (mg/Kg)	C _{water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	HBHA W	HBHA W	HBHA W	HBHA W	NOAEL															
Volatile Organics																				
1,1-Dichloroethane	0.012	1.0	NA	NA	764	NA	NA	NA	2.26E-05	5.80E-05	8.06E-05	NA	NA	3E-08	8E-08	1E-07	NA	NA	28.0%	72.0%
2-Butanone	0.34	1.0	NA	NA	12	NA	NA	NA	6.40E-04	5.80E-05	6.98E-04	NA	NA	5E-05	5E-06	6E-05	NA	NA	91.7%	8.3%
Acetone	1.4	2.5	NA	NA	1700	NA	NA	NA	2.63E-03	1.45E-04	2.78E-03	NA	NA	2E-06	9E-08	2E-06	NA	NA	94.8%	5.2%
Benzene	0.041	1.0	NA	NA	26	NA	NA	NA	7.71E-05	5.80E-05	1.35E-04	NA	NA	3E-06	2E-06	5E-06	NA	NA	57.1%	42.9%
Carbon Disulfide	0.013	1.0	NA	NA	126	NA	NA	NA	2.45E-05	5.80E-05	8.25E-05	NA	NA	2E-07	5E-07	7E-07	NA	NA	29.7%	70.3%
Semivolatile Organics																				
2-Methylphenol	0.32	7.0	NA	NA	NA	NA	NA	NA	6.02E-04	4.06E-04	1.01E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	0.24	7.0	0.028	NA	NA	4.56E-03	NA	4.51E-03	4.06E-04	5.42E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	0.098	7.0	0.0030	NA	NA	4.89E-04	NA	4.89E-04	1.84E-04	4.06E-04	1.08E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	0.59	7.0	0.023	NA	NA	3.75E-03	NA	3.75E-03	1.11E-03	4.06E-04	5.26E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	4.0	7.0	0.059	NA	1.3	9.61E-03	NA	9.61E-03	7.52E-03	4.06E-04	1.75E-02	7E-03	NA	6E-03	3E-04	1E-02	54.8%	NA	42.9%	2.3%
Benzo(a)pyrene	7.2	7.0	0.025	1.1	1.3	4.07E-03	1.70E-01	1.74E-01	1.35E-02	4.06E-04	1.88E-01	3E-03	1E-01	1E-02	3E-04	1E-01	2.2%	90.4%	7.2%	0.2%
Benzo(b)fluoranthene	10	7.0	0.073	0.76	1.3	1.19E-02	1.13E-01	1.25E-01	1.88E-02	4.06E-04	1.45E-01	9E-03	9E-02	1E-02	3E-04	1E-01	8.2%	78.5%	13.0%	0.3%
Benzo(g,h,i)perylene	3.7	7.0	0.034	NA	133	5.54E-03	NA	5.54E-03	6.96E-03	4.06E-04	1.29E-02	4E-05	NA	5E-05	3E-06	IE-04	42.9%	NA	53.9%	3.1%
Benzo(k)fluoranthene	5.9	7.0	0.019	1.2	1.3	3.09E-03	1.75E-01	1.78E-01	1.11E-02	4.06E-04	1.90E-01	2E-03	1E-01	9E-03	3E-04	1E-01	1.6%	92.3%	5.9%	0.2%
Benzoic acid	NA	0.90	NA	NA	500	NA	NA	NA	5.22E-05	5.22E-05	NA	NA	NA	1E-07	1E-07	NA	NA	NA	100.0%	NA
bis(2-Ethyhexyl)phthalate	1.5	120	NA	NA	1.1	NA	NA	NA	2.82E-03	6.96E-03	9.78E-03	NA	NA	3E-03	6E-03	9E-03	NA	NA	28.8%	71.2%
Carbazole	0.97	2.5	NA	NA	133	NA	NA	NA	1.82E-03	1.45E-04	1.97E-03	NA	NA	1E-05	1E-06	1E-05	NA	NA	92.6%	7.4%
Chrysene	9.9	7.0	0.13	1.2	1.3	2.12E-02	1.72E-01	1.93E-01	1.86E-02	4.06E-04	2.12E-01	2E-02	1E-01	1E-02	3E-04	2E-01	10.0%	81.1%	8.8%	0.2%
Cyclohexanone	NA	100	NA	NA	NA	NA	NA	NA	NA	5.80E-03	5.80E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	1.2	7.0	0.0045	NA	1.3	7.33E-04	NA	7.33E-04	2.26E-03	4.06E-04	3.40E-03	6E-04	NA	2E-03	3E-04	3E-03	21.6%	NA	66.5%	12.0%
Fluoranthene	16	0.20	0.45	0.76	125	7.33E-02	1.13E-01	1.86E-01	3.01E-02	1.61E-05	2.16E-01	6E-04	9E-04	2E-04	9E-08	2E-03	33.9%	52.2%	13.9%	0.0%
Fluorene	0.37	7.0	0.029	NA	NA	4.72E-03	NA	4.72E-03	6.96E-04	4.06E-04	5.83E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	4.9	7.0	0.034	2.1	1.3	5.54E-03	3.08E-01	3.13E-01	9.22E-03	4.06E-04	3.23E-01	4E-03	2E-01	7E-03	3E-04	2E-01	1.7%	95.3%	2.9%	0.1%
Naphthalene	0.19	7.0	0.021	NA	NA	3.42E-03	NA	3.42E-03	3.57E-04	4.06E-04	4.18E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	0.17	35	NA	NA	150	NA	NA	NA	3.20E-04	2.00E-03	2.32E-03	NA	NA	2E-06	1E-05	2E-05	NA	NA	13.8%	86.2%
Phenanthrene	7.0	7.0	0.18	1.9	NA	2.93E-02	2.81E-01	3.10E-01	1.32E-02	4.06E-04	3.24E-01	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	0.12	6.0	NA	NA	1694	NA	NA	NA	2.26E-04	3.48E-04	5.74E-04	NA	NA	1E-07	2E-07	3E-07	NA	NA	39.3%	60.7%
Pyrene	14	0.20	0.31	0.86	133	5.05E-02	1.28E-01	1.78E-01	1.63E-02	2.05E-01	4E-04	1E-03	2E-04	9E-08	2E-03	24.7%	62.5%	12.9%	0.0%	
Low Molecular Weight PAHs	8.5	42	0.28	1.9	40	4.63E-02	2.81E-01	3.27E-01	1.60E-02	2.44E-03	3.46E-01	1E-03	7E-03	4E-04	6E-05	9E-03	13.4%	81.3%	4.6%	0.7%
Pesticides and PCBs																				
4,4'-DDD	0.0032	0.0050	NA	0.00017	4.3	NA	2.47E-05	2.47E-05	6.02E-06	2.90E-07	3.10E-05	NA	6E-06	1E-06	7E-08	7E-06	NA	79.6%	19.4%	0.9%
4,4'-DDE	0.0027	0.0050	NA	0.00012	2.7	NA	1.75E-05	1.75E-05	5.08E-06	2.90E-07	2.29E-05	NA	6E-06	2E-06	1E-07	8E-06	NA	76.5%	22.2%	1.3%
4,4'-DDT	0.00080	0.0050	NA	0.00013	0.0028	NA	1.92E-05	1.92E-05	1.50E-06	2.90E-07	2.10E-05	NA	7E-03	5E-04	1E-04	7E-03	NA	91.4%	7.2%	1.4%
alpha-Chlordane	0.00080	0.0050	NA	0.000082	2.1	NA	1.22E-05	1.22E-05	1.50E-06	2.90E-07	1.40E-05	NA	6E-06	7E-07	1E-07	7E-06	NA	87.2%	10.7%	2.1%
gamma-Chlordane	0.00080	0.0050	NA	0.000077	2.1	NA	1.15E-05													

TABLE 44. MAXIMUM EXPOSURE CALCULATIONS FOR MALLARD - HBHA POND

Compound	C Sediment (mg/Kg)	C Water (ug/L)	C Animal (mg/Kg)	C Plant (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water		
Datasource:	HBHA P	HBHA P	HBHA P	HBHA P	NOAEL																	
Volatile Organics																						
1,1-Dichloroethane	0.027	1.0	NA	NA	764	NA	NA	NA	5.08E-05	5.80E-05	1.09E-04	NA	NA	7E-08	8E-08	1E-07	NA	NA	46.7%	53.3%		
2-Butanone	0.0030	1.0	NA	NA	12	NA	NA	NA	5.64E-06	5.80E-05	6.36E-05	NA	NA	5E-07	5E-06	5E-06	NA	NA	8.9%	91.1%		
Acetone	0.031	2.5	NA	NA	1700	NA	NA	NA	5.83E-05	1.45E-04	2.03E-04	NA	NA	3E-08	9E-08	1E-07	NA	NA	28.7%	71.3%		
Benzene	0.0030	1.0	NA	NA	26	NA	NA	NA	5.64E-06	5.80E-05	6.36E-05	NA	NA	2E-07	2E-06	2E-06	NA	NA	8.9%	91.1%		
Carbon Disulfide	0.017	1.0	NA	NA	126	NA	NA	NA	3.20E-05	5.80E-05	9.00E-05	NA	NA	3E-07	5E-07	7E-07	NA	NA	35.5%	64.5%		
Semivolatile Organics																						
2-Methylphenol	0.15	6.0	NA	NA	NA	NA	NA	NA	2.82E-04	3.48E-04	6.30E-04	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Acenaphthene	0.15	6.0	0.0030	NA	NA	4.89E-04	NA	4.89E-04	2.82E-04	3.48E-04	1.12E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Acenaphthylene	0.080	6.0	0.0035	NA	NA	5.70E-04	NA	5.70E-04	1.50E-04	3.48E-04	1.07E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Anthracene	0.26	6.0	0.0090	NA	NA	1.47E-03	NA	1.47E-03	4.89E-04	3.48E-04	2.30E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Benzo(a)anthracene	1.3	6.0	0.022	NA	1.3	3.58E-03	NA	3.58E-03	2.45E-03	3.48E-04	6.38E-03	3E-03	NA	2E-03	3E-04	5E-03	56.2%	NA	38.3%	5.5%		
Benzo(a)pyrene	1.4	6.0	0.015	0.22	1.3	2.44E-03	3.31E-02	3.56E-02	2.63E-03	3.48E-04	3.86E-02	2E-03	3E-02	2E-03	3E-04	3E-02	6.3%	85.9%	6.8%	0.9%		
Benzo(b)fluoranthene	2.1	6.0	0.027	0.16	1.3	4.40E-03	2.38E-02	2.82E-02	3.95E-03	3.48E-04	3.25E-02	3E-03	2E-02	3E-03	3E-04	3E-02	13.5%	73.3%	12.1%	1.1%		
Benzo(g,h,i)perylene	0.76	6.0	0.014	NA	133	2.28E-03	NA	2.28E-03	1.43E-03	3.48E-04	4.06E-03	2E-05	NA	1E-05	3E-06	3E-05	NA	35.2%	8.6%			
Benzo(k)fluoranthene	1.7	6.0	0.0080	0.34	1.3	1.30E-03	5.05E-02	5.18E-02	3.20E-03	3.48E-04	5.53E-02	1E-03	4E-02	2E-03	3E-04	4E-02	2.4%	91.2%	5.8%	0.6%		
Benzoic acid	NA	69	NA	NA	500	NA	NA	NA	NA	4.00E-03	4.00E-03	NA	NA	NA	8E-06	8E-06	NA	NA	NA	100.0%		
bis(2-Ethylhexyl)phthalate	37	6.0	NA	NA	1.1	NA	NA	NA	6.96E-02	3.48E-04	6.99E-02	NA	NA	6E-02	3E-04	6E-02	NA	NA	99.5%	0.5%		
Carbazole	0.16	2.5	NA	NA	133	NA	NA	NA	3.01E-04	1.45E-04	4.46E-04	NA	NA	2E-06	1E-06	3E-06	NA	NA	67.5%	32.5%		
Chrysem	1.8	6.0	0.025	0.21	1.3	4.07E-03	3.13E-02	3.54E-02	3.39E-03	3.48E-04	3.91E-02	3E-03	2E-02	3E-03	3E-04	3E-02	10.4%	80.0%	8.7%	0.9%		
Cyclohexanone	NA	290	NA	NA	NA	NA	NA	NA	NA	1.68E-02	1.68E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Dibenz(a,h)anthracene	0.21	6.0	0.0035	NA	1.3	5.70E-04	NA	5.70E-04	3.95E-04	3.48E-04	1.31E-03	4E-04	NA	3E-04	3E-04	1E-03	43.4%	NA	30.1%	26.5%		
Fluoranthene	3.4	6.0	0.065	0.16	125	1.06E-02	2.40E-02	3.45E-02	6.40E-03	3.48E-04	4.13E-02	8E-05	2E-04	5E-05	3E-06	3E-04	25.6%	58.0%	15.5%	0.8%		
Fluorene	0.15	6.0	0.0030	NA	NA	NA	NA	4.89E-04	2.82E-04	3.48E-04	1.12E-03	NA	NA	NA	NA	NA	NA	NA	NA			
Indeno(1,2,3-cd)pyrene	0.94	6.0	0.015	0.40	1.3	2.44E-03	5.90E-02	6.15E-02	1.77E-03	3.48E-04	6.36E-02	2E-03	5E-02	1E-03	3E-04	5E-02	3.8%	92.8%	2.8%	0.5%		
Naphthalene	0.11	6.0	0.0080	NA	NA	1.30E-03	NA	1.30E-03	2.07E-04	3.48E-04	1.86E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA		
N-nitrosodiphenylamine	0.15	30	NA	NA	150	NA	NA	NA	2.82E-04	1.71E-03	1.99E-03	NA	NA	2E-06	1E-05	1E-05	NA	NA	14.2%	85.8%		
Phenanthrene	1.0	6.0	0.021	0.27	NA	3.42E-03	4.01E-02	4.36E-02	1.88E-03	3.48E-04	4.58E-02	NA	NA	NA	NA	NA	NA	NA	NA	NA		
Phenol	0.15	7.0	NA	NA	1694	NA	NA	NA	2.82E-04	4.06E-04	6.88E-04	NA	NA	2E-07	2E-07	4E-07	NA	NA	41.0%	59.0%		
Pyrene	2.6	6.0	0.048	0.16	133	7.82E-03	2.38E-02	3.16E-02	4.89E-03	3.48E-04	3.68E-02	6E-05	2E-04	4E-05	3E-06	3E-04	21.2%	64.5%	13.3%	0.9%		
Low Molecular Weight PAHs	0.75	30	0.027	0.27	40	4.32E-03	4.01E-02	4.45E-02	1.41E-03	1.74E-03	4.76E-02	1E-04	4E-05	4E-05	4E-05	1E-03	9.1%	84.3%	3.0%	3.7%		
Pesticides and PCBs																						
4,4'-DDD	0.022	0.0044	NA	0.0011	4.3	NA	1.70E-04	1.70E-04	4.14E-05	2.55E-07	2.11E-04	NA	NA	4E-05	1E-05	6E-08	5E-05	NA	80.3%	19.6%	0.1%	
4,4'-DDE	0.0038	0.0044	NA	0.00017	2.7	NA	2.46E-05	2.46E-05	7.15E-06	2.55E-07	3.20E-05	NA	NA	9E-06	3E-06	9E-08	1E-05	NA	76.9%	22.3%	0.8%	
4,4'-DDT	0.0038	0.0044	NA	0.00061	0.0028	NA	9.10E-05	9.10E-05	7.15E-06	2.55E-07	9.84E-05	NA	NA	3E-02	3E-03	9E-05	4E-02	NA	92.5%	7.3%	0.3%	
alpha-Chlordane	0.092	0.0044	NA	0.0094	2.1	NA	1.40E-03	1.40E-03	1.73E-04	2.55E-07	1.58E-03	NA	NA	7E-04	8E-05	1E-07	7E-04	NA	89.0%	11.0%	0.0%	
gamma-Chlordane	0.093	0.0044	NA	0.0089	2.1	NA	1.33E-03	1.33E-03	1.75E-04	2.55E-07	1.51E-03	NA	NA	6E-04	8E-							

TABLE 45. MAXIMUM EXPOSURE CALCULATIONS FOR MALLARD - SITEWIDE

NOTES:

$$HQ = \text{Dose/TRV}$$

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 46. MAXIMUM EXPOSURE CALCULATIONS FOR MALLARD - REFERENCE

Compound	C Sediment (mg/Kg)	C Water (ug/L)	C Animal (mg/Kg)	C Plant (mg/Kg)	TRV mg/Kg day	DOSE plant (mg/Kg BW day)	DOSE animal (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water	
Datasource:	Reference	Reference	Reference	Reference	NOAEL															
Volatile Organics																				
1,1-Dichloroethane	0.035	1.0	NA	NA	764	NA	NA	NA	6.49E-05	5.80E-05	1.23E-04	NA	NA	8E-08	8E-08	2E-07	NA	NA	52.8%	47.2%
2-Butanone	0.68	2.5	NA	NA	12	NA	NA	NA	1.28E-03	1.45E-04	1.42E-03	NA	NA	1E-04	1E-05	IE-04	NA	NA	89.8%	10.2%
Acetone	2.2	2.5	NA	NA	1700	NA	NA	NA	4.14E-03	1.45E-04	4.28E-03	NA	NA	2E-06	9E-08	3E-06	NA	NA	96.6%	3.4%
Benzene	0.0040	1.0	NA	NA	26	NA	NA	NA	7.52E-06	5.80E-05	6.55E-05	NA	NA	3E-07	2E-06	2E-06	NA	NA	11.5%	88.5%
Carbon Disulfide	0.0030	1.0	NA	NA	126	NA	NA	NA	5.64E-06	5.80E-05	6.36E-05	NA	NA	4E-08	5E-07	5E-07	NA	NA	8.9%	91.1%
Vinyl Chloride	0.035	1.0	NA	NA	0.17	NA	NA	NA	6.49E-05	5.80E-05	1.23E-04	NA	NA	4E-04	3E-04	7E-04	NA	NA	52.8%	47.2%
Xylene, m/p-	0.025	2.0	NA	NA	2.1	NA	NA	NA	4.70E-05	1.16E-04	1.63E-04	NA	NA	2E-05	6E-05	8E-05	NA	NA	28.8%	71.2%
Xylene, o-	0.015	1.0	NA	NA	2.1	NA	NA	NA	2.82E-05	5.80E-05	8.62E-05	NA	NA	1E-05	3E-05	4E-05	NA	NA	32.7%	67.3%
Semivolatile Organics																				
2-Methylphenol	1.6	2.5	NA	NA	NA	NA	NA	NA	2.92E-03	1.45E-04	3.06E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1.4	2.5	0.0040	NA	NA	6.51E-04	NA	6.51E-04	2.63E-03	1.45E-04	3.43E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	0.80	2.5	0.0020	NA	NA	3.26E-04	NA	3.26E-04	1.50E-03	1.45E-04	1.98E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	1.9	2.5	0.0040	NA	NA	6.51E-04	NA	6.51E-04	3.57E-03	1.45E-04	4.37E-03	NA	NA	NA	NA	NA	NA	NA	NA	
Benzo(a)anthracene	5.9	2.5	0.0040	NA	1.3	6.51E-04	NA	6.51E-04	1.11E-02	1.45E-04	1.19E-02	5E-04	NA	9E-03	1E-04	9E-03	5.5%	NA	93.3%	1.2%
Benzo(a)pyrene	5.5	2.5	0.0020	0.87	1.3	3.26E-04	1.30E-01	1.30E-01	1.03E-02	1.45E-04	1.41E-01	3E-04	1E-01	8E-03	1E-04	IE-01	0.2%	92.3%	7.3%	0.1%
Benzo(b)fluoranthene	10	2.5	0.0040	0.76	1.3	6.51E-04	1.13E-01	1.14E-01	1.88E-02	1.45E-04	1.33E-01	5E-04	9E-02	1E-02	1E-04	IE-01	0.5%	85.3%	14.1%	0.1%
Benzo(g,h,i)perylene	2.2	2.5	0.0030	NA	133	4.89E-04	NA	4.89E-04	4.14E-03	1.45E-04	4.77E-03	4E-06	NA	3E-05	1E-06	4E-05	10.2%	NA	86.7%	3.0%
Benzo(k)fluoranthene	9.6	2.5	0.0040	1.9	1.3	6.51E-04	2.85E-01	2.86E-01	1.81E-02	1.45E-04	3.04E-01	5E-04	2E-01	1E-02	1E-04	2E-01	0.2%	93.8%	5.9%	0.0%
Benzoic acid	NA	NA	NA	NA	500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.43	2.5	NA	NA	1.1	NA	NA	NA	8.09E-04	1.45E-04	9.54E-04	NA	NA	7E-04	1E-04	9E-04	NA	NA	84.8%	15.2%
Carbazole	0.99	2.5	NA	NA	133	NA	NA	NA	1.86E-03	1.45E-04	2.01E-03	NA	NA	1E-05	1E-06	2E-05	NA	NA	92.8%	7.2%
Chrysene	7.3	2.5	0.0060	0.85	1.3	9.77E-04	1.27E-01	1.28E-01	1.37E-02	1.45E-04	1.42E-01	8E-04	1E-01	1E-02	1E-04	IE-01	0.7%	89.5%	9.7%	0.1%
Cyclohexanone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Dibenz(a,h)anthracene	1.1	2.5	0.0040	NA	1.3	6.51E-04	2.07E-03	1.45E-04	2.87E-03	5E-04	1E-04	2E-03	NA	2E-03	1E-04	2E-03	22.7%	NA	72.2%	5.1%
Fluoranthene	15	2.5	0.013	0.71	125	2.12E-03	1.06E-01	1.08E-01	2.82E-02	1.45E-04	1.36E-01	2E-05	8E-04	2E-04	1E-06	IE-03	1.6%	77.6%	20.7%	0.1%
Fluorene	2.8	2.5	0.0040	NA	NA	6.51E-04	NA	6.51E-04	5.27E-03	1.45E-04	6.06E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	3.7	2.5	0.0030	1.6	1.3	4.89E-04	2.32E-01	2.33E-01	6.96E-03	1.45E-04	2.40E-01	4E-04	2E-01	5E-03	1E-04	2E-01	0.2%	96.8%	2.9%	0.1%
Naphthalene	0.52	2.5	0.014	NA	NA	2.20E-03	NA	2.20E-03	9.78E-04	1.45E-04	3.32E-03	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	1.6	2.5	NA	NA	150	NA	NA	NA	2.92E-03	1.45E-04	3.06E-03	NA	NA	2E-05	1E-06	2E-05	NA	NA	95.3%	4.7%
Phenanthrene	12	2.5	0.012	3.2	NA	1.87E-03	4.82E-01	4.84E-01	2.26E-02	1.45E-04	5.06E-01	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	1.6	2.5	NA	NA	1694	NA	NA	NA	2.92E-03	1.45E-04	3.06E-03	NA	NA	2E-06	9E-08	2E-06	NA	NA	95.3%	4.7%
Pyrene	11	2.5	0.010	0.67	133	1.63E-03	1.01E-01	1.02E-01	1.45E-04	1.23E-01	1E-05	8E-04	2E-04	1E-06	9E-04	1.3%	81.7%	16.8%	0.1%	
Low Molecular Weight PAHs	19	15	0.039	3.2	40	6.35E-03	4.82E-01	4.88E-01	3.65E-02	8.70E-04	5.25E-01	2E-04	1E-02	9E-04	2E-05	IE-02	1.2%	91.7%	7.0%	0.2%
Pesticides and PCBs																				
4,4'-DDD	0.39	0.050	NA	0.020	4.3	NA	3.00E-03	3.00E-03	7.34E-04	2.90E-06	3.74E-03	NA	7E-04	2E-04	7E-07	9E-04	NA	80.3%	19.6%	0.1%
4,4'-DDE	0.47	0.050	NA	0.020	2.7	NA	3.04E-03	3.04E-03	8.84E-04	2.90E-06	3.93E-03	NA	1E-03	3E-04	1E-06	IE-03	NA	77.4%	22.5%	0.1%
X 4,4'-DDT	0.18	0.050	NA	0.029	0.0028	NA	4.31E-03	4.31E-03	4.31E-03	2.90E-06	4.65E-03	NA	2E+00	1E-0						

TABLE 47. MAXIMUM EXPOSURE CALCULATIONS FOR SHREW - STATION A6

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Prey} (mg/Kg)		TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water	
Datasource:	A6 Upland	No SW	Earthworm A6		NOAEL												
Volatile Organics																	
1,1-Dichloroethane	NA	NA	NA		1679	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA		27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA		3736	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA		31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA		277	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA		0.37	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, m/p-	NA	NA	NA		2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, o-	NA	NA	NA		2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics																	
2-Methylphenol	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA		416	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA		1189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic acid	NA	NA	NA		1099	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA		22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexanone	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA		149	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA		149	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA		238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	NA	NA	NA		330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phanthrene	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA		3723	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides and PCBs																	
4,4'-DDD	NA	NA	NA		5.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA		3.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA		1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	NA	NA	NA		5.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	NA	NA	NA		5.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics																	
X Aluminum	6530	NA	1037		58	5.41E+02	8.06E+01	NA	6.22E+02	9E+00	1E+00	NA	IE+01	87.0%	13.0%	NA	
X Antimony	50	NA	8.0		0.15	4.17E+00	6.21E-01	NA	4.79E+00	3E+01	4E+00	NA	3E+01	87.0%	13.0%	NA	
X Arsenic	719	NA	114		0.15	5.96E+01	8.88E+00	NA	6.85E+01	4E+02	6E+01	NA	5E+02	87.0%	13.0%	NA	
X Barium	535	NA	85		12	4.43E+01	6.61E+00	NA	5.09E+01	4E+00	6E-01	NA	4E+00	87.0%	13.0%	NA	
Beryllium	0.21	NA	0.033		1.5	1.74E-02	2.59E-03	NA	2.00E-02	1E-02	2E-03	NA	1E-02	87.0%	13.0%	NA	
Cadmium	2.3	NA	0.37		2.1	1.91E-01	2.84E-02	NA	2.19E-01	9E-02	1E-02	NA	IE-01	87.0%	13.0%	NA	
X Chromium	2680	NA	425		20	2.22E+02	3.31E+01	NA	2.55E+02	1E+01	2E+00	NA	1E+01	87.0%	13.0%	NA	
Cobalt	11	NA	1.7		11	9.11E-01	1.36E-01	NA	1.05E+00	8E-02	1E-02	NA	1E-01	87.0%	13.0%	NA	
X Copper	611	NA	97		33	5.06E+01	7.55E+00	NA	5.82E+01	2E+00	2E-01	NA	2E+00	87.0%	13.0%	NA	
Iron	66900	NA	10619		NA	5.54E+03	8.26E+02	NA	6.37E+03	NA	NA	NA	NA	NA	NA	NA	
X Lead	5200	NA	825		18	4.31E+02	6.42E+01	NA	4.95E+02	2E+01	4E+00	NA	3E+01	87.0%	13.0%	NA	
Manganese	353	NA	56		193	2.92E+01	4.36E+00	NA	3.36E+01	2E-01	2E-02	NA	2E-01	87.0%	13.0%	NA	
X Mercury	9.6	NA	1.5		0.070	7.95E-01	1.19E-01	NA	9.14E-01	1E+01	2E+00	NA	1E+01	87.0%	13.0%	NA	
Nickel	17	NA	2.6		88	1.38E+00	2.05E-01	NA	1.58E+00	2E-02	2E-03	NA	2E-02	87.0%	13.0%	NA	
X Selenium	7.6	NA	1.2		0.44	6.30E-01	9.39E-02	NA	7.24E-01	1E+00	2E-01	NA	2E+00	87.0%	13.0%	NA	
Silver	17	NA	2.6		398	1.38E+00	2.05E-01	NA	1.58E+00	3E-							

TABLE 48. MAXIMUM EXPOSURE CALCULATIONS FOR SHREW - STATION BE-1

Compound	C Sediment (mg/Kg)	C Water (ug/L)	C Prey (mg/Kg)		TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water	
Datasource:	BE-1	No SW	Earthworm BE-1		NOAEL												
Volatile Organics																	
1,1-Dichloroethane	NA	NA	NA		1679	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA		27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA		3736	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA		31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA		277	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA		0.37	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, m/p-	NA	NA	NA		2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, o-	NA	NA	NA		2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics																	
2-Methylphenol	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA		416	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA		1189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic acid	NA	NA	NA		1099	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA		22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexanone	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA		149	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA		149	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA		238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	NA	NA	NA		330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA		3723	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides and PCBs																	
4,4'-DDD	NA	NA	NA		5.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA		3.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA		1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	NA	NA	NA		5.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	NA	NA	NA		5.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics																	
X Aluminum	7330	NA	1163		58	6.07E+02	9.05E+01	NA	6.98E+02	1E+01	2E+00	NA	1E+01	87.0%	13.0%	NA	
X Antimony	1.1	NA	0.17		0.15	9.11E-02	1.36E-02	NA	1.05E-01	6E-01	9E-02	NA	7E-01	87.0%	13.0%	NA	
X Arsenic	29	NA	4.7		0.15	2.43E+00	3.62E-01	NA	2.79E+00	2E+01	2E+00	NA	2E+01	87.0%	13.0%	NA	
Barium	64	NA	10		12	5.26E+00	7.84E-01	NA	6.05E+00	4E-01	7E-02	NA	5E-01	87.0%	13.0%	NA	
Beryllium	0.42	NA	0.067		1.5	3.48E-02	5.19E-03	NA	4.00E-02	2E-02	4E-03	NA	3E-02	87.0%	13.0%	NA	
Cadmium	1.9	NA	0.30		2.1	1.57E-01	2.35E-02	NA	1.81E-01	7E-02	1E-02	NA	9E-02	87.0%	13.0%	NA	
Chromium	35	NA	5.5		20	2.89E+00	4.31E-01	NA	3.32E+00	1E-01	2E-02	NA	2E-01	87.0%	13.0%	NA	
Cobalt	6.9	NA	1.1		11	5.72E-01	8.52E-02	NA	6.57E-01	5E-02	8E-03	NA	6E-02	87.0%	13.0%	NA	
Copper	89	NA	14		33	7.37E+00	1.10E+00	NA	8.47E+00	2E-01	3E-02	NA	3E-01	87.0%	13.0%	NA	
Iron	10500	NA	1667		NA	8.70E+02	1.30E+02	NA	1.00E+03	NA	NA	NA	NA	NA	NA	NA	NA
Lead	143	NA	23		18	1.18E+01	1.77E+00	NA	1.36E+01	7E-01	1E-01	NA	8E-01	87.0%	13.0%	NA	
Manganese	174	NA	28		193	1.44E+01	2.15E+00	NA	1.66E+01	7E-02	1E-02	NA	9E-02	87.0%	13.0%	NA	
Mercury	0.19	NA	0.030		0.070	1.57E-02	2.35E-03	NA	1.81E-02	2E-01	3E-02	NA	3E-01	87.0%	13.0%	NA	
Nickel	18	NA	2.9		88	1.52E+00	2.27E-01	NA	1.75E+00	2E-02	3E-03	NA	2E-02	87.0%	13.0%	NA	
Selenium	2.8	NA	0.44		0.44	2.32E-01	3.46E-02	NA	2.67E-01	5E-01	8E-02	NA	6E-01	87.0%	13.0%	NA	
Silver	5.2	NA	0.83		398	4.31E-01	6.42E-02	NA	4.95E-01	1E-03	2E-04	NA	1E-0				

TABLE 49. MAXIMUM EXPOSURE CALCULATIONS FOR SHREW - STATION BE-2

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Prey} (mg/Kg)		TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water	
Datasource:	BE-2	No SW	Earthworm BE-2		NOAEL												
Volatile Organics																	
1,1-Dichloroethane	NA	NA	NA		1679	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA		27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA		3736	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA		31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA		277	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA		0.37	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, m/p-	NA	NA	NA		2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, o-	NA	NA	NA		2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics																	
2-Methylphenol	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA		416	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA		1189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic acid	NA	NA	NA		1099	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA		22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexanone	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA		149	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA		149	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA		238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	NA	NA	NA		330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthren	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA		3723	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides and PCBs																	
4,4'-DDD	NA	NA	NA		5.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA		3.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA		1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	NA	NA	NA		5.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	NA	NA	NA		5.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics																	
X Aluminum	15200	NA	2413		58	1.26E+03	1.88E+02	NA	1.45E+03	2E+01	3E+00	NA	2E+01	87.0%	13.0%	NA	
X Antimony	3.1	NA	0.49		0.15	2.57E-01	3.83E-02	NA	2.95E-01	2E+00	3E-01	NA	2E+00	87.0%	13.0%	NA	
X Arsenic	375	NA	60		0.15	3.11E+01	4.63E+00	NA	3.57E+01	2E+02	3E+01	NA	2E+02	87.0%	13.0%	NA	
Barium	79	NA	13		12	6.57E+00	9.79E-01	NA	7.55E+00	6E-01	8E-02	NA	6E-01	87.0%	13.0%	NA	
Beryllium	0.86	NA	0.14		1.5	7.13E-02	1.06E-02	NA	8.19E-02	5E-02	7E-03	NA	6E-02	87.0%	13.0%	NA	
Cadmium	5.0	NA	0.79		2.1	4.14E-01	6.18E-02	NA	4.76E-01	2E-01	3E-02	NA	2E-01	87.0%	13.0%	NA	
Chromium	75	NA	12		20	6.19E+00	9.23E-01	NA	7.11E+00	3E-01	5E-02	NA	4E-01	87.0%	13.0%	NA	
Cobalt	29	NA	4.7		11	2.44E+00	3.63E-01	NA	2.80E+00	2E-01	3E-02	NA	3E-01	87.0%	13.0%	NA	
Copper	206	NA	33		33	1.71E+01	2.54E+00	NA	1.96E+01	5E-01	8E-02	NA	6E-01	87.0%	13.0%	NA	
Iron	55600	NA	8825		NA	4.61E+03	6.87E+02	NA	5.29E+03	NA	NA	NA	NA	NA	NA	NA	NA
Lead	199	NA	32		18	1.65E+01	2.46E+00	NA	1.89E+01	9E-01	1E-01	NA	1E+00	87.0%	13.0%	NA	
Manganese	652	NA	103		193	5.40E+01	8.05E+00	NA	6.21E+01	3E-01	4E-02	NA	3E-01	87.0%	13.0%	NA	
Mercury	0.38	NA	0.060		0.070	3.15E-02	4.69E-03	NA	3.62E-02	4E-01	7E-02	NA	5E-01	87.0%	13.0%	NA	
Nickel	29	NA	4.6		88	2.40E+00	3.58E-01	NA	2.76E+00	3E-02	4E-03	NA	3E-02	87.0%	13.0%	NA	
Selenium	4.0	NA	0.63		0.44	3.31E-01	4.94E-02	NA	3.81E-01	8E-01	1E-01	NA	9E-01	87.0%	13.0%	NA	
Silver	1.4	NA	0.22		398	1.16E-01	1.73E-02	NA	1.33E-01								

TABLE 50. MAXIMUM EXPOSURE CALCULATIONS FOR SHREW - STATION BE-4

Compound	C _{Sediment} (mg/Kg)	C _{Water} (μ g/L)	C _{Prey} (mg/Kg)		TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water	
Datasource:	BE-4	No SW	Earthworm BE-4		NOAEL												
Volatile Organics																	
1,1-Dichloroethane	NA	NA	NA		1679	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2-Butanone	NA	NA	NA		27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetone	NA	NA	NA		3736	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA		31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Disulfide	NA	NA	NA		277	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vinyl Chloride	NA	NA	NA		0.37	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, m/p-	NA	NA	NA		2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, o-	NA	NA	NA		2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organics																	
2-Methylphenol	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	NA	NA		416	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthylene	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Anthracene	NA	NA	NA		1189	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(k)fluoranthene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzoic acid	NA	NA	NA		1099	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	NA	NA		22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbazole	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cyclohexanone	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluoranthene	NA	NA	NA		149	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA		149	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	NA	NA	NA		1.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA		238	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
N-nitrosodiphenylamine	NA	NA	NA		330	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenanthren	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phenol	NA	NA	NA		3723	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA		159	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides and PCBs																	
4,4'-DDD	NA	NA	NA		5.1	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDE	NA	NA	NA		3.2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
4,4'-DDT	NA	NA	NA		1.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
alpha-Chlordane	NA	NA	NA		5.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
gamma-Chlordane	NA	NA	NA		5.4	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Inorganics																	
X Aluminum	11100	NA	1762		58	9.20E+02	1.37E+02	NA	1.06E+03	2E+01	2E+00	NA	2E+01	87.0%	13.0%	NA	
X Antimony	2.0	NA	0.32		0.15	1.66E-01	2.47E-02	NA	1.90E-01	1E+00	2E-01	NA	1E+00	87.0%	13.0%	NA	
X Arsenic	75	NA	12		0.15	6.21E+00	9.26E-01	NA	7.14E+00	4E+01	6E+00	NA	5E+01	87.0%	13.0%	NA	
Barium	40	NA	6.3		12	3.30E+00	4.92E-01	NA	3.79E+00	3E-01	4E-02	NA	3E-01	87.0%	13.0%	NA	
Beryllium	0.72	NA	0.11		1.5	5.97E-02	8.89E-03	NA	6.85E-02	4E-02	6E-03	NA	5E-02	87.0%	13.0%	NA	
Cadmium	1.1	NA	0.17		2.1	9.11E-02	1.36E-02	NA	1.05E-01	4E-02	6E-03	NA	5E-02	87.0%	13.0%	NA	
Chromium	182	NA	29		20	1.51E+01	2.25E+00	NA	1.73E+01	8E-01	1E-01	NA	9E-01	87.0%	13.0%	NA	
Cobalt	7.9	NA	1.3		11	6.55E-01	9.76E-02	NA	7.52E-01	6E-02	9E-03	NA	7E-02	87.0%	13.0%	NA	
Copper	88	NA	14		33	7.27E+00	1.08E+00	NA	8.35E+00	2E-01	3E-02	NA	2E-01	87.0%	13.0%	NA	
Iron	14500	NA	2302		NA	1.20E+03	1.79E+02	NA	1.38E+03	NA	NA	NA	NA	NA	NA	NA	
X Lead	290	NA	46		18	2.40E+01	3.58E+00	NA	2.76E+01	1E+00	2E-01	NA	2E+00	87.0%	13.0%	NA	
Manganese	688	NA	109		193	5.70E+01	8.50E+00	NA	6.55E+01	3E-01	4E-02	NA	3E-01	87.0%	13.0%	NA	
Mercury	0.19	NA	0.029		0.070	1.53E-02	2.28E-03	NA	1.76E-02	2E-01	3E-02	NA	3E-01	87.0%	13.0%	NA	
Nickel	23	NA	3.7		88	1.94E+00	2.89E-01	NA	2.23E+00	2E-02	3E-03	NA	3E-02	87.0%	13.0%	NA	
Selenium	5.3	NA	0.84		0.44	4.39E-01	6.55E-02	NA	5.05E-01	1E+00	1E-01	NA	1E+00	87.0%	13.0%	NA	
Silver	1.3	NA	0.21		398	1.08E-01	1.61E-02	NA									

TABLE 51. MAXIMUM EXPOSURE CALCULATIONS FOR SHREW - STATION HB02-2

Compound	C Sediment (mg/Kg)	C Water (ug/L)	C Prey (mg/Kg)		TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water	
Datasource:	HB02-2	HB02-2	Earthworm HB02-2		NOAEL												
Volatile Organics																	
1,1-Dichloroethane	NA	1.0	NA		1679	NA	NA	2.20E-04	2.20E-04	NA	NA	1E-07	IE-07	NA	NA	100.0%	
2-Butanone	NA	1.0	NA		27	NA	NA	2.20E-04	2.20E-04	NA	NA	8E-06	8E-06	NA	NA	100.0%	
Acetone	NA	2.5	NA		3736	NA	NA	5.50E-04	5.50E-04	NA	NA	1E-07	IE-07	NA	NA	100.0%	
Benzene	NA	1.0	NA		31	NA	NA	2.20E-04	2.20E-04	NA	NA	7E-06	7E-06	NA	NA	100.0%	
Carbon Disulfide	NA	1.0	NA		277	NA	NA	2.20E-04	2.20E-04	NA	NA	8E-07	8E-07	NA	NA	100.0%	
Vinyl Chloride	NA	1.0	NA		0.37	NA	NA	2.20E-04	2.20E-04	NA	NA	6E-04	6E-04	NA	NA	100.0%	
Xylene, m/p-	NA	2.0	NA		2.5	NA	NA	4.40E-04	4.40E-04	NA	NA	2E-04	2E-04	NA	NA	100.0%	
Xylene, o-	NA	1.0	NA		2.5	NA	NA	2.20E-04	2.20E-04	NA	NA	9E-05	9E-05	NA	NA	100.0%	
Semivolatile Organics																	
2-Methylphenol	NA	7.0	NA		NA	NA	NA	1.54E-03	1.54E-03	NA	NA	NA	NA	NA	NA	NA	
Acenaphthene	NA	7.0	NA		416	NA	NA	1.54E-03	1.54E-03	NA	NA	4E-06	4E-06	NA	NA	100.0%	
Acenaphthylene	NA	7.0	NA		159	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-05	1E-05	NA	NA	100.0%	
Anthracene	NA	7.0	NA		1189	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-06	1E-06	NA	NA	100.0%	
Benzo(a)anthracene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%	
Benzo(a)pyrene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	IE-03	NA	NA	100.0%	
Benzo(b)fluoranthene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	IE-03	NA	NA	100.0%	
Benzo(g,h,i)perylene	NA	7.0	NA		159	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-05	1E-05	NA	NA	100.0%	
Benzo(k)fluoranthene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	IE-03	NA	NA	100.0%	
Benzoic acid	NA	0.90	NA		1099	NA	NA	1.98E-04	1.98E-04	NA	NA	2E-07	2E-07	NA	NA	100.0%	
bis(2-Ethylhexyl)phthalate	NA	120	NA		22	NA	NA	2.64E-02	2.64E-02	NA	NA	1E-03	IE-03	NA	NA	100.0%	
Carbazole	NA	2.5	NA		159	NA	NA	5.50E-04	5.50E-04	NA	NA	3E-06	3E-06	NA	NA	100.0%	
Chrysene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	IE-03	NA	NA	100.0%	
Cyclohexanone	NA	100	NA		NA	NA	NA	2.20E-02	2.20E-02	NA	NA	NA	NA	NA	NA	NA	
Diben(a,h)anthracene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	IE-03	NA	NA	100.0%	
Fluoranthene	NA	0.20	NA		149	NA	NA	4.40E-05	4.40E-05	NA	NA	3E-07	3E-07	NA	NA	100.0%	
Fluorene	NA	7.0	NA		149	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-05	IE-05	NA	NA	100.0%	
Indeno(1,2,3-cd)pyrene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	IE-03	NA	NA	100.0%	
Naphthalene	NA	7.0	NA		238	NA	NA	1.54E-03	1.54E-03	NA	NA	6E-06	6E-06	NA	NA	100.0%	
N-nitrosodiphenylamine	NA	35	NA		330	NA	NA	7.59E-03	7.59E-03	NA	NA	2E-05	2E-05	NA	NA	100.0%	
Phenanthrene	NA	7.0	NA		159	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-05	IE-05	NA	NA	100.0%	
Phenol	NA	6.0	NA		3723	NA	NA	1.32E-03	1.32E-03	NA	NA	4E-07	4E-07	NA	NA	100.0%	
Pyrene	NA	0.20	NA		159	NA	NA	4.40E-05	4.40E-05	NA	NA	3E-07	3E-07	NA	NA	100.0%	
Pesticides and PCBs																	
4,4'-DDD	NA	0.0050	NA		5.1	NA	NA	1.10E-06	1.10E-06	NA	NA	2E-07	2E-07	NA	NA	100.0%	
4,4'-DDE	NA	0.0050	NA		3.2	NA	NA	1.10E-06	1.10E-06	NA	NA	3E-07	3E-07	NA	NA	100.0%	
4,4'-DDT	NA	0.0050	NA		1.8	NA	NA	1.10E-06	1.10E-06	NA	NA	6E-07	6E-07	NA	NA	100.0%	
alpha-Chlordane	NA	0.0050	NA		5.4	NA	NA	1.10E-06	1.10E-06	NA	NA	2E-07	2E-07	NA	NA	100.0%	
gamma-Chlordane	NA	0.0050	NA		5.4	NA	NA	1.10E-06	1.10E-06	NA	NA	2E-07	2E-07	NA	NA	100.0%	
Inorganics																	
X Aluminum	15000	468	2381		58	1.24E+03	1.85E+02	1.03E-01	1.43E+03	2E+01	3E+00	2E-03	2E+01	87.0%	13.0%	0.0%	
X Antimony	11	2.7	1.7		0.15	8.70E-01	1.30E-01	5.90E-04	1.00E+00	6E+00	9E-01	4E-03	7E+00	87.0%	13.0%	0.1%	
X Arsenic	1220	57	194		0.15	1.01E+02	1.51E+01	1.25E-02	1.16E+02	7E+02	1E+02	8E-02	8E+02	87.0%	13.0%	0.0%	
X Barium	227	48	36		12	1.88E+01	2.80E+00	1.06E-02	2.16E+01	2E+00	9E-04	2E+00	87.0%	13.0%	0.0%		
Beryllium	1.7	0.39	0.27		1.5	1.41E-01	2.10E-02	8.61E-05	1.62E-01	1E-01	1E-02	6E-05	IE-01	87.0%	13.0%	0.1%	
Cadmium	30	0.47	4.7		2.1	2.45E+00	3.66E-01	1.03E-04	2.82E+00	1E+00	2E-01	5E-05	IE+00	87.0%	13.0%	0.0%	
X Chromium	407	14	65		20	3.37E+01	5.03E+00	3.10E-03	3.88E+01	2E+00	3E-01	2E-04	2E+00	87.0%	13.0%	0.0%	
Cobalt	69	2.1	11		11	5.71E+00	8.51E-01	4.62E-04	6.56E+00	5E-01	8E-02	4E-05	6E-01	87.0%	13.0%	0.0%	
X Copper	621	19	99		33	5.15E+01	7.67E+00	4.22E-03	5.91E+01	2E+00	2E-01	1E-04	2E+00	87.0%	13		

TABLE 52. MAXIMUM EXPOSURE CALCULATIONS FOR SHREW - STATION HB03-3

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Prey (mg/Kg)		TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water
Datasource:	HB03-3	HB03-3	Earthworm HB03-3	NOAEL												
Volatile Organics																
1,1-Dichloroethane	NA	1.0	NA		1679	NA	NA	2.20E-04	2.20E-04	NA	NA	1E-07	1E-07	NA	NA	100.0%
2-Butanone	NA	1.0	NA		27	NA	NA	2.20E-04	2.20E-04	NA	NA	8E-06	8E-06	NA	NA	100.0%
Acetone	NA	2.5	NA		3736	NA	NA	5.50E-04	5.50E-04	NA	NA	1E-07	1E-07	NA	NA	100.0%
Benzene	NA	1.0	NA		31	NA	NA	2.20E-04	2.20E-04	NA	NA	7E-06	7E-06	NA	NA	100.0%
Carbon Disulfide	NA	1.0	NA		277	NA	NA	2.20E-04	2.20E-04	NA	NA	8E-07	8E-07	NA	NA	100.0%
Vinyl Chloride	NA	1.0	NA		0.37	NA	NA	2.20E-04	2.20E-04	NA	NA	6E-04	6E-04	NA	NA	100.0%
Xylene, m/p-	NA	2.0	NA		2.5	NA	NA	4.40E-04	4.40E-04	NA	NA	2E-04	2E-04	NA	NA	100.0%
Xylene, o-	NA	1.0	NA		2.5	NA	NA	2.20E-04	2.20E-04	NA	NA	9E-05	9E-05	NA	NA	100.0%
Semivolatile Organics																
2-Methylphenol	NA	7.0	NA		NA	NA	NA	1.54E-03	1.54E-03	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	7.0	NA		416	NA	NA	1.54E-03	1.54E-03	NA	NA	4E-06	4E-06	NA	NA	100.0%
Acenaphthylene	NA	7.0	NA		159	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-05	1E-05	NA	NA	100.0%
Anthracene	NA	7.0	NA		1189	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-06	1E-06	NA	NA	100.0%
Benzo(a)anthracene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%
Benzo(a)pyrene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%
Benzo(b)fluoranthene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%
Benzo(g,h,i)perylene	NA	7.0	NA		159	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-05	1E-05	NA	NA	100.0%
Benzo(k)fluoranthene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%
Benzoic acid	NA	0.90	NA		1099	NA	NA	1.98E-04	1.98E-04	NA	NA	2E-07	2E-07	NA	NA	100.0%
bis(2-Ethylhexyl)phthalate	NA	120	NA		22	NA	NA	2.64E-02	2.64E-02	NA	NA	1E-03	1E-03	NA	NA	100.0%
Carbazole	NA	2.5	NA		159	NA	NA	5.50E-04	5.50E-04	NA	NA	3E-06	3E-06	NA	NA	100.0%
Chrysene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%
Cyclohexanone	NA	100	NA		NA	NA	NA	2.20E-02	2.20E-02	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%
Fluoranthene	NA	0.20	NA		149	NA	NA	4.40E-05	4.40E-05	NA	NA	3E-07	3E-07	NA	NA	100.0%
Fluorene	NA	7.0	NA		149	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-05	1E-05	NA	NA	100.0%
Indeno(1,2,3-cd)pyrene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%
Naphthalene	NA	7.0	NA		238	NA	NA	1.54E-03	1.54E-03	NA	NA	6E-06	6E-06	NA	NA	100.0%
N-nitrosodiphenylamine	NA	35	NA		330	NA	NA	7.59E-03	7.59E-03	NA	NA	2E-05	2E-05	NA	NA	100.0%
Phenanthrene	NA	7.0	NA		159	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-05	1E-05	NA	NA	100.0%
Phenol	NA	6.0	NA		3723	NA	NA	1.32E-03	1.32E-03	NA	NA	4E-07	4E-07	NA	NA	100.0%
Pyrene	NA	0.20	NA		159	NA	NA	4.40E-05	4.40E-05	NA	NA	3E-07	3E-07	NA	NA	100.0%
Pesticides and PCBs																
4,4'-DDD	NA	0.0050	NA		5.1	NA	NA	1.10E-06	1.10E-06	NA	NA	2E-07	2E-07	NA	NA	100.0%
4,4'-DDE	NA	0.0050	NA		3.2	NA	NA	1.10E-06	1.10E-06	NA	NA	3E-07	3E-07	NA	NA	100.0%
4,4'-DDT	NA	0.0050	NA		1.8	NA	NA	1.10E-06	1.10E-06	NA	NA	6E-07	6E-07	NA	NA	100.0%
alpha-Chlordane	NA	0.0050	NA		5.4	NA	NA	1.10E-06	1.10E-06	NA	NA	2E-07	2E-07	NA	NA	100.0%
gamma-Chlordane	NA	0.0050	NA		5.4	NA	NA	1.10E-06	1.10E-06	NA	NA	2E-07	2E-07	NA	NA	100.0%
Inorganics																
X Aluminum	14600	468	2317		58	1.21E+03	1.80E+02	1.03E-01	1.39E+03	2E+01	3E+00	2E-03	2E+01	87.0%	13.0%	0.0%
X Antimony	8.1	2.7	1.3		0.15	6.71E-01	1.00E-01	5.90E-04	7.72E-01	5E+00	7E-01	4E-03	5E+00	87.0%	13.0%	0.1%
X Arsenic	533	57	85		0.15	4.42E+01	6.58E+00	1.25E-02	5.08E+01	3E+02	4E+01	8E-02	3E+02	87.0%	13.0%	0.0%
Barium	171	48	27		12	1.42E+01	2.11E+00	1.06E-02	1.63E+01	1E+00	2E-01	9E-04	1E+00	87.0%	13.0%	0.1%
Beryllium	1.7	0.39	0.27		1.5	1.41E-01	2.10E-02	8.61E-05	1.62E-01	1E-01	1E-02	6E-05	1E-01	87.0%	13.0%	0.1%
Cadmium	16	0.47	2.5		2.1	1.28E+00	1.91E-01	1.03E-04	1.48E+00	6E-01	9E-02	5E-05	7E-01	87.0%	13.0%	0.0%
Chromium	294	14	47		20	2.44E+01	3.63E+00	3.10E-03	2.80E+01	1E+00	2E-01	2E-04	1E+00	87.0%	13.0%	0.0%
Cobalt	55	2.1	8.8		11	4.58E+00	6.83E-01	4.62E-04	5.27E+00	4E-01	6E-02	4E-05	5E-01	87.0%	13.0%	0.0%
X Copper	586	19	93		33	4.86E+01	7.24E+00	4.22E-03	5.58E+01	1E+00	2E-01	1E-04	2E+00	87.0%	13.0%	0.0%
Iron	100000	6140	15873		NA	8.29E+03	1.24E+03	1.35E+00	9.52E-03	NA	NA	NA	NA	NA	NA	NA
X Lead																

TABLE 53. MAXIMUM EXPOSURE CALCULATIONS FOR SHREW - STATION HB04

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Prey} (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water	
Datasource:	HB04	HB03-2 (shrew HB04)	Earthworm HB04		NOAEL											
Volatile Organics																
1,1-Dichloroethane	NA	1.0	NA		1679	NA	NA	2.20E-04	2.20E-04	NA	NA	1E-07	1E-07	NA	NA	100.0%
2-Butanone	NA	1.0	NA		27	NA	NA	2.20E-04	2.20E-04	NA	NA	8E-06	8E-06	NA	NA	100.0%
Acetone	NA	2.5	NA		3736	NA	NA	5.50E-04	5.50E-04	NA	NA	1E-07	1E-07	NA	NA	100.0%
Benzene	NA	1.0	NA		31	NA	NA	2.20E-04	2.20E-04	NA	NA	7E-06	7E-06	NA	NA	100.0%
Carbon Disulfide	NA	1.0	NA		277	NA	NA	2.20E-04	2.20E-04	NA	NA	8E-07	8E-07	NA	NA	100.0%
Semivolatile Organics																
2-Methylphenol	NA	7.0	NA		NA	NA	NA	1.54E-03	1.54E-03	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	NA	7.0	NA		416	NA	NA	1.54E-03	1.54E-03	NA	NA	4E-06	4E-06	NA	NA	100.0%
Acenaphthylene	NA	7.0	NA		159	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-05	1E-05	NA	NA	100.0%
Anthracene	NA	7.0	NA		1189	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-06	1E-06	NA	NA	100.0%
Benzo(a)anthracene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%
Benzo(a)pyrene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%
Benzo(b)fluoranthene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%
Benzo(g,h,i)perylene	NA	7.0	NA		159	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-05	1E-05	NA	NA	100.0%
Benzo(k)fluoranthene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%
Benzoic acid	NA	0.90	NA		1099	NA	NA	1.98E-04	1.98E-04	NA	NA	2E-07	2E-07	NA	NA	100.0%
bis(2-Ethylhexyl)phthalate	NA	120	NA		22	NA	NA	2.64E-02	2.64E-02	NA	NA	1E-03	1E-03	NA	NA	100.0%
Carbazole	NA	2.5	NA		159	NA	NA	5.50E-04	5.50E-04	NA	NA	3E-06	3E-06	NA	NA	100.0%
Chrysene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%
Cyclohexanone	NA	100	NA		NA	NA	NA	2.20E-02	2.20E-02	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%
Fluoranthene	NA	0.20	NA		149	NA	NA	4.40E-05	4.40E-05	NA	NA	3E-07	3E-07	NA	NA	100.0%
Fluorene	NA	7.0	NA		149	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-05	1E-05	NA	NA	100.0%
Indeno(1,2,3-cd)pyrene	NA	7.0	NA		1.5	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-03	1E-03	NA	NA	100.0%
Naphthalene	NA	7.0	NA		238	NA	NA	1.54E-03	1.54E-03	NA	NA	6E-06	6E-06	NA	NA	100.0%
N-nitrosodiphenylamine	NA	35	NA		330	NA	NA	7.59E-03	7.59E-03	NA	NA	2E-05	2E-05	NA	NA	100.0%
Phenanthrene	NA	7.0	NA		159	NA	NA	1.54E-03	1.54E-03	NA	NA	1E-05	1E-05	NA	NA	100.0%
Phenol	NA	6.0	NA		3723	NA	NA	1.32E-03	1.32E-03	NA	NA	4E-07	4E-07	NA	NA	100.0%
Pyrene	NA	0.20	NA		159	NA	NA	4.40E-05	4.40E-05	NA	NA	3E-07	3E-07	NA	NA	100.0%
Pesticides and PCBs																
4,4'-DDD	NA	0.0050	NA		5.1	NA	NA	1.10E-06	1.10E-06	NA	NA	2E-07	2E-07	NA	NA	100.0%
4,4'-DDE	NA	0.0050	NA		3.2	NA	NA	1.10E-06	1.10E-06	NA	NA	3E-07	3E-07	NA	NA	100.0%
4,4'-DDT	NA	0.0050	NA		1.8	NA	NA	1.10E-06	1.10E-06	NA	NA	6E-07	6E-07	NA	NA	100.0%
alpha-Chlordane	NA	0.0050	NA		5.4	NA	NA	1.10E-06	1.10E-06	NA	NA	2E-07	2E-07	NA	NA	100.0%
gamma-Chlordane	NA	0.0050	NA		5.4	NA	NA	1.10E-06	1.10E-06	NA	NA	2E-07	2E-07	NA	NA	100.0%
Inorganics																
X Aluminum	5150	468	817		58	4.27E+02	6.36E+01	1.03E-01	4.90E+02	7E+00	1E+00	2E-03	8E+00	87.0%	13.0%	0.0%
X Antimony	1.1	2.7	0.17		0.15	9.11E-02	1.36E-02	5.90E-04	1.05E-01	6E-01	9E-02	4E-03	7E-01	86.5%	12.9%	0.6%
X Arsenic	33	57	5.2		0.15	2.73E+00	4.06E-01	1.25E-02	3.14E+00	2E+01	3E+00	8E-02	2E+01	86.7%	12.9%	0.4%
Barium	18	48	2.8		12	1.47E+00	2.19E-01	1.06E-02	1.70E+00	1E-01	2E-02	9E-04	1E-01	86.5%	12.9%	0.6%
Beryllium	0.30	0.39	0.048		1.5	2.49E-02	3.71E-03	8.61E-05	2.86E-02	2E-02	3E-03	6E-05	2E-02	86.8%	12.9%	0.3%
Cadmium	0.72	0.47	0.11		2.1	5.97E-02	8.89E-03	1.03E-04	6.87E-02	3E-02	4E-03	5E-05	3E-02	86.9%	13.0%	0.2%
Chromium	39	14	6.2		20	3.23E+00	4.82E-01	3.10E-03	3.72E+00	2E-01	2E-02	4E-04	2E-01	87.0%	13.0%	0.1%
Cobalt	4.2	2.1	0.67		11	3.48E-01	5.19E-02	4.62E-04	4.00E-01	3E-02	5E-03	4E-05	4E-02	86.9%	13.0%	0.1%
Copper	44	19	6.9		33	3.62E+00	5.40E-01	4.22E-03	4.16E+00	1E-01	2E-02	1E-04	1E-01	86.9%	13.0%	0.1%
Iron	8490	6140	1348		NA	7.03E+02	1.05E+02	1.35E+00	8.10E+02	NA	NA	NA	NA	NA	NA	NA
Lead	50	10	7.9		18	4.10E+00	6.11E-01	2.27E-03	4.72E+00	2E-01	3E-02	1E-04	3E-01	87.0%	13.0%	0.0%
Manganese	98	846	16		193	8.10E+00	1.21E+00	1.86E-01	9.50E+00	4E-02	6E-03	1E-03	5E-02	85.3%	12.7%	2.0%
Mercury	0.32	0.18	0.051		0.070	2.65E-02	3.95E-03	3.98E-05								

TABLE 54. MAXIMUM EXPOSURE CALCULATIONS FOR SHREW - REFERENCE

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Prey (mg/Kg)		TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water	
Datasource:	Ref Wetland	Ref	Wetland Ref		NOAEL												
Volatile Organics																	
1,1-Dichloroethane	0.035	0.50	NA		1679	NA	4.26E-04	1.10E-04	5.36E-04	NA	3E-07	7E-08	3E-07	NA	79.5%	20.5%	
2-Butanone	0.015	2.5	NA		27	NA	1.85E-04	5.50E-04	7.35E-04	NA	7E-06	2E-05	3E-05	NA	25.2%	74.8%	
Acetone	0.090	2.5	NA		3736	NA	1.11E-03	5.50E-04	1.66E-03	NA	3E-07	1E-07	4E-07	NA	66.9%	33.1%	
Benzene	0.015	0.50	NA		31	NA	1.85E-04	1.10E-04	2.95E-04	NA	6E-06	4E-06	9E-06	NA	62.7%	37.3%	
Carbon Disulfide	NA	0.50	NA		277	NA	NA	1.10E-04	1.10E-04	NA	NA	4E-07	4E-07	NA	NA	100.0%	
Vinyl Chloride	NA	0.50	NA		0.37	NA	NA	1.10E-04	1.10E-04	NA	NA	3E-04	3E-04	NA	NA	NA	100.0%
Xylene, m-p-	NA	NA	NA		2.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylene, o-	0.015	NA	NA		2.5	NA	1.85E-04	NA	1.85E-04	NA	7E-05	NA	7E-05	NA	100.0%	NA	
Semivolatile Organics																	
2-Methylphenol	1.1	2.5	NA		NA	NA	1.30E-02	5.50E-04	1.35E-02	NA	NA	NA	NA	NA	NA	NA	NA
Acenaphthene	1.4	2.5	NA		416	NA	1.73E-02	5.50E-04	1.78E-02	NA	4E-05	1E-06	4E-05	NA	96.9%	3.1%	
Acenaphthylene	0.80	2.5	NA		159	NA	9.88E-03	5.50E-04	1.04E-02	NA	6E-05	3E-06	7E-05	NA	94.7%	5.3%	
Anthracene	1.9	2.5	NA		1189	NA	2.35E-02	5.50E-04	2.40E-02	NA	2E-05	5E-07	2E-05	NA	97.7%	2.3%	
Benzo(a)anthracene	5.9	2.5	NA		1.5	NA	7.29E-02	5.50E-04	7.34E-02	NA	5E-02	4E-04	5E-02	NA	99.3%	0.7%	
Benzo(a)pyrene	5.5	2.5	NA		1.5	NA	6.79E-02	5.50E-04	6.85E-02	NA	4E-02	4E-04	4E-02	NA	99.2%	0.8%	
Benzo(b)fluoranthene	10	2.5	NA		1.5	NA	1.24E-01	5.50E-04	1.24E-01	NA	8E-02	4E-04	8E-02	NA	99.6%	0.4%	
Benzo(g,h,i)perylene	NA	2.5	NA		159	NA	NA	5.50E-04	5.50E-04	NA	NA	3E-06	3E-06	NA	NA	100.0%	
Benzo(k)fluoranthene	9.6	2.5	NA		1.5	NA	1.19E-01	5.50E-04	1.19E-01	NA	8E-02	4E-04	8E-02	NA	99.5%	0.5%	
Benzoic acid	NA	NA	NA		1099	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	NA	2.5	NA		22	NA	NA	5.50E-04	5.50E-04	NA	NA	3E-05	3E-05	NA	NA	NA	100.0%
Carbazole	0.99	NA	NA		159	NA	1.22E-02	NA	1.22E-02	NA	8E-05	NA	8E-05	NA	100.0%	NA	
Chrysene	NA	2.5	NA		1.5	NA	NA	5.50E-04	5.50E-04	NA	NA	4E-04	4E-04	NA	NA	100.0%	
Cyclohexanone	NA	NA	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.50	2.5	NA		1.5	NA	6.18E-03	5.50E-04	6.73E-03	NA	4E-03	4E-04	4E-03	NA	91.8%	8.2%	
Fluoranthene	15	2.5	NA		149	NA	1.85E-01	5.50E-04	1.86E-01	NA	1E-03	4E-06	1E-03	NA	99.7%	0.3%	
Fluorene	2.8	2.5	NA		149	NA	3.46E-02	5.50E-04	3.51E-02	NA	2E-04	4E-06	4E-04	NA	98.4%	1.6%	
Indeno(1,2,3-cd)pyrene	1.7	2.5	NA		1.5	NA	2.10E-02	5.50E-04	2.15E-02	NA	1E-02	4E-04	1E-02	NA	97.4%	2.6%	
Naphthalene	0.52	2.5	NA		238	NA	6.42E-03	5.50E-04	6.97E-03	NA	3E-05	2E-06	3E-05	NA	92.1%	7.9%	
N-nitrosodiphenylamine	1.1	2.5	NA		330	NA	1.30E-02	5.50E-04	1.35E-02	NA	4E-05	2E-06	4E-05	NA	95.9%	4.1%	
Phenanthrene	12	2.5	NA		159	NA	1.48E-01	5.50E-04	1.49E-01	NA	9E-04	3E-06	9E-04	NA	99.6%	0.4%	
Phenol	1.1	2.5	NA		3723	NA	1.30E-02	5.50E-04	1.35E-02	NA	3E-06	1E-07	4E-06	NA	95.9%	4.1%	
Pyrene	11	2.5	NA		159	NA	1.36E-01	5.50E-04	1.36E-01	NA	9E-04	3E-06	9E-04	NA	99.6%	0.4%	
Pesticides and PCBs																	
4,4'-DDD	0.39	0.050	NA		5.1	NA	4.82E-03	1.10E-05	4.83E-03	NA	1E-03	2E-06	1E-03	NA	99.8%	0.2%	
4,4'-DDE	0.037	0.050	NA		3.2	NA	4.57E-04	1.10E-05	4.68E-04	NA	1E-04	3E-06	1E-04	NA	97.6%	2.4%	
4,4'-DDT	0.13	0.050	NA		1.8	NA	1.61E-03	1.10E-05	1.62E-03	NA	9E-04	6E-06	9E-04	NA	99.3%	0.7%	
alpha-Chlordane	0.0053	0.025	NA		5.4	NA	6.55E-05	5.50E-06	7.10E-05	NA	1E-05	1E-06	1E-05	NA	92.2%	7.8%	
gamma-Chlordane	0.0046	0.0017	NA		5.4	NA	5.68E-05	3.74E-07	5.72E-05	NA	1E-05	7E-08	1E-05	NA	99.3%	0.7%	
Inorganics																	
X Aluminum	14300	142	2270		58	1.18E+03	1.77E+02	3.12E+02	1.36E+03	2E+01	3E+00	5E-04	2E+01	87.0%	13.0%	0.0%	
X Antimony	1.2	0.55	0.19		0.15	9.94E-02	1.48E-02	1.21E-04	1.14E-01	7E-01	1E-01	8E-04	8E-01	86.9%	13.0%	0.1%	
X Arsenic	41	3.2	6.4		0.15	3.36E+00	5.01E-01	7.04E-04	3.87E+00	2E+01	3E+00	5E-03	3E+01	87.0%	13.0%	0.0%	
Barium	88	45	14		12	7.25E+00	1.08E+00	9.92E-03	8.34E+00	6E-01	9E-02	8E-04	7E-01	86.9%	13.0%	0.1%	
Beryllium	1.2	0.050	0.19		1.5	9.94E-02	1.48E-02	1.10E-05	1.14E-01	7E-02	1E-02	8E-06	8E-02	87.0%	13.0%	0.0%	
Cadmium	2.9	0.075	0.46		2.1	2.40E-01	3.58E-02	1.65E-05	2.76E-01	1E-01	2E-02	8E-06	1E-01	87.0%	13.0%	0.0%	
X Chromium	410	0.88	65		20	3.40E+01	5.06E+00	1.94E-04	3.90E+01	2E+00	3E-01	1E-05	2E+00	87.0%	13.0%	0.0%	
Cobalt	13	0.25	2.1		11	1.09E+00	1.63E-01	5.50E-05	1.26E+00	1E-01							

APPENDIX 7C.6

EXPOSURE FACTORS - UCL MODELS

TABLE 1
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Muskrat - UCLs

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	AR, BE-1, BE-2, BE-3, HB01, HB02-1, HB03-1, HB03-2, MC-09, MC-13, Ref	C	Chemical Concentration	see Appendix 7C.7	mg/kg or ug/L	see Appendix 7C.7	Dose _{food} (mg/kg BW-day) =
		BW	Body Weight	0.827	kg	a	((FIW x Pe _{animal} x C _{animal}) + (FIW x Pe _{plant} x C _{plant})) x ASUF x TSUF
		FIW	Food Intake Rate, wet	0.533	kg food _{wet} / kg BW _{wet} * day	b	
		FID	Food Intake Rate, dry	0.071	kg food _{dry} / kg BW _{wet} * day	c	
		Pe _{animal}	Animal Food Source Dietary Percentage	0.056	fraction on a wet weight basis, 10% on a dry weight basis	d	
		Pe _{plant}	Plant Food Source Dietary Percentage	0.944	fraction on a wet weight basis, 90% on a dry weight basis	d	
		WC _{animal}	water content (% moisture), animal tissue	0.767		e	Dose _{soil/sed} (mg/kg BW-day) =
		WC _{plant}	water content (% moisture), plant tissue	0.87		f	SI _{soil/sed} x FID x C _{soil/sed} x ASUF x TSUF x SBAF
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.033	fraction on a dry weight basis (kg sed _{dry} / kg food _{dry})	g	
		SI _{water}	Surface Water Ingested	0.101	L _{water} / kg BW _{wet} * day	h	
		ASUF	Areal Site Use Factor	1	--	i	Dose _{water} (mg/kg BW-day) =
		TSUF	Temporal Site Use Factor	1	--	j	SI _{water} x C _{water} x CF x ASUF x TSUF
		SBAF	Soil/Sed Bioavailability Factor	1	--	k	
		CF	Conversion Factor	0.001	mg/ug	--	

Notes:

a Based on adult female. Source: Reeves and Williams (1956) cited in USEPA (1993d)

b Based on Equation: FIW = [Pe_{animal} ^ FID/(1-WC_{animal})] +[Pe_{plant} ^ FID/(1-WC_{plant})]. Source: Sample et al. (1997)

c Based on equation: FID = (0.0687 (BW)^{0.822})/BW for mammals. Source: Nagy (1987) cited in Sample et al. (1997)

d Based on diet composition of 90% plant and 10% animal (dry weight) converted to wet weight basis. Ten percent animal tissue was selected as a conservative value for the Aberjona River study area. Site specific crayfish tissue data were used to represent COPC concentrations in the animal portion of the diet. Sources: Martin, et al. (1951) and USEPA (1993d)

$$Pe_{animal} = (\text{fraction animal tissue dry}/(1-\text{fraction water content animal tissue})) / ((\text{fraction animal tissue dry}/(1-\text{fraction water content animal tissue})) + (\text{fraction plant tissue dry}/(1-\text{fraction water content plant tissue})))$$

$$Pe_{plant} = (\text{fraction plant tissue dry}/(1-\text{fraction water content plant tissue})) / ((\text{fraction animal tissue dry}/(1-\text{fraction water content animal tissue})) + (\text{fraction plant tissue dry}/(1-\text{fraction water content plant tissue})))$$

e Average % moisture measured in invertebrate tissue samples at Wells G&H Superfund Site (USEPA, 2004)

f Average % moisture measured in plant tissue samples at Wells G&H Superfund Site (USEPA, 2004)

g A conservative value for incidental sediment ingestion equivalent of 3.3% of diet (dry weight). Value used for mallard. Source: Beyer et al. (1994)

h Based on equation: SI_{water} = (0.099 (BW)^{0.9})/BW for mammals. Source: Calder and Braun (1983) cited in Sample et al. (1997)

i Based on home range smaller than the exposure area. Source: USEPA (1993d)

j Assumes no migration, population present year-round

k Assumes 100% bioavailability of COPC

TABLE 2
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Otter - UCLs

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	Sitewide, Reference	C	Chemical Concentration	see Appendix 7C.7	mg/kg or ug/L	see Appendix 7C.7	Dose _{food} (mg/kg BW-day) = $((FIW \times Pe_{animal} \times C_{animal}) + (FIW \times Pe_{invent} \times C_{invent})) \times ASUF \times TSUF$
		BW	Body weight	7.9	kg	a	
		FIW	Food Intake Rate, wet	0.1	kg food _{wet} / kg BW _{wet} * day	b	
		FID	Food Intake Rate, dry	0.025	kg food _{dry} / kg BW _{wet} * day	c	
		Pe _{animal}	Fish Food Source Dietary Percentage	0.8	fraction on a wet weight basis	d	
		Pe _{invent}	Invertebrate Food Source Dietary Percentage	0.2	fraction on a wet weight basis	d	
		WC _{animal}	Water content (% moisture), fish tissue	0.753		e	
		WC _{invent}	Water content (% moisture), invertebrate tissue	0.767		f	
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.02	fraction on a dry weight basis (kg sed _{dry} / kg food _{dry})	g	
		SI _{water}	Surface Water Ingested	0.08	L _{water} / kg BW _{wet} * day	h	
		ASUF	Areal Site Use Factor	1	--	i	Dose _{water} (mg/kg BW-day) =
		TSUF	Temporal Site Use Factor	1	--	j	SI _{water} x CF x ASUF x TSUF
		SBAF	Soil/Sed Bioavailability Factor	1	--	k	
		CF	Conversion Factor	0.001	mg/ug	--	

Notes:

a Based on adult female. Source: Melquist and Hornocker (1983) cited in USEPA (1993d)

b Source: Harris (1968) cited in USEPA (1993d)

c Wet food intake rate converted to dry food intake rate using the following formula: FID = [FIW * Pe_{animal} * (1-WC_{animal})] + [FIW * Pe_{invent} * (1-WC_{invent})]. Source: Sample et al. (1997)

d Based on diet composition of 80% fish and 20% invertebrate. The diet of the river otter consists primarily of fish, although they may consume aquatic invertebrates and crustaceans. Small mammals, amphibians, insects, birds, and reptiles may also be consumed, as available. USEPA (2003b) documented crayfish as 20% of river otter diet in the Housatonic River. Sources: USEPA (1993d); USEPA (2003b)

e Average % moisture measured in fish tissue samples at Wells G&H Superfund Site (USEPA, 2004)

f Average % moisture measured in invertebrate tissue samples at Wells G&H Superfund Site (USEPA, 2004)

g A conservative value for incidental sediment ingestion equivalent of 2% of diet (dry weight). Value used is the lower end of range as observed for other species in Beyer et al. (1994) with similar diet

h Source: Sample and Suter (1999)

i Based on home range smaller than the exposure area. Source: USEPA (1993d)

j Assumes no migration, population present year-round

k Assumes 100% bioavailability of COPC

TABLE 3
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Heron - UCLs

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	Sitetwide, Reference	C	Chemical Concentration	see Appendix 7C.7	mg/kg or ug/L	see Appendix 7C.7	Dose _{load} (mg/kg BW-day) = $((FIW \times Pe_{animal} \times C_{animal}) + (FIW \times Pe_{invert} \times C_{invert})) \times ASUF \times TSUF$
		BW	Body Weight	0.212	kg	a	
		FIW	Food Intake Rate, wet	0.19	kg food _{wet} / kg BW _{wet} * day	b	
		FID	Food Intake Rate, dry	0.0454	kg food _{dry} / kg BW _{wet} * day	c	
		Pe _{animal}	Fish Food Source Dietary Percentage	0.45	fraction on a wet weight basis	d	
		Pe _{invert}	Invertebrate Food Source Dietary Percentage	0.55	fraction on a wet weight basis	d	
		WC _{animal}	Water content (% moisture), animal tissue	0.753		e	
		WC _{invert}	Water content (% moisture), invertebrate tissue	0.767		f	
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.01	fraction on a dry weight basis (kg seddry / kg fooddry)	g	
		SI _{water}	Surface Water Ingested	0.098	L _{water} / kg BW _{wet} * day	h	
		ASUF	Areal Site Use Factor	1	--	i	
		TSUF	Temporal Site Use Factor	0.5	--	j	
		SBAF	Soil/Sed Bioavailability Factor	1	--	k	
		CF	Conversion Factor	0.001	mg/ug	--	

a Based on adult. Source: Nelson and Martin (1953) cited in USEPA (1993d)

b Source: Kushlan (1978) cited in Sample et al. (1997)

c Based on equation: FID = FIW * (1-WC_{animal})*(1-WC_{invert})/((Pe_{animal}*(1-WC_{animal})) + (Pe_{invert}*(1-WC_{animal}))). Source: Nagy (1987) cited in Sample et al. (1997)

d Based on diet composition of 45% fish and 55% animal on a wet weight basis. Source: Meyerriecks (1962) cited in Sample et al. (1997)

e Average % moisture measured in fish tissue samples at Wells G&H Superfund Site (USEPA, 2004)

f Average % moisture measured in invertebrate tissue samples at Wells G&H Superfund Site (USEPA, 2004)

g A conservative value for incidental sediment ingestion equivalent of 1% of diet (dry weight). Source: Sample et al. (1997)

h Based on equation: SI_{water} = (0.059 (BW)^{0.67})/BW for birds. Source: Calder and Braun (1983) cited in Sample et al. (1997)

i Based on home range smaller than the exposure area. Source: USEPA (1993d)

j Assumes migration, population present onsite six months per year

k Assumes 100% bioavailability of COPC

TABLE 4
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Mallard - UCLs

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	HBHA wetland, HBHA pond, Sitewide, Reference	C	Chemical Concentration	see Appendix 7C.7	mg/kg or ug/L	see Appendix 7C.7	Dose _{food} (mg/kg BW-day) = ((FIW x Pe _{animal} x C _{animal}) + (FIW x Pe _{plant} x C _{plant})) x ASUF x TSUF
		BW	Body weight	1.043	kg	a	
		FIW	Food Intake Rate, wet	0.312	kg food _{wet} / kg BW _{wet} * day	b	
		FID	Food Intake Rate, dry	0.057	kg food _{dry} / kg BW _{wet} * day	c	
		Pe _{animal}	Animal Food Source Dietary Percentage	0.522	fraction on a wet weight basis, 67% on a dry weight basis	d,	
		Pe _{plant}	Plant Food Source Dietary Percentage	0.478	fraction on a wet weight basis, 33% on a dry weight basis	d, m	
		WC _{animal}	Water content (% moisture), animal tissue	0.767		e	
		WC _{plant}	Water content (% moisture), plant tissue	0.87		f	
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.033	fraction on a dry weight basis (kg sed _{dry} / kg food _{dry})	g	
		SI _{water}	Surface Water Ingested	0.058	L _{water} / kg BW _{wet} * day	h	
		ASUF	Areal Site Use Factor	1	--	i	Dose _{water} (mg/kg BW-day) = SI _{water} x C _{water} x CF x ASUF x TSUF
		TSUF	Temporal Site Use Factor	0.5	--	j	
		SBAF	Soil/Sed Bioavailability Factor	1	--	k	
		CF	Conversion Factor	0.001	mg/ug	--	

Notes:

a Based on adult female. Source: Nelson and Martin (1953) cited in USEPA (1993d)

b Based on Equation: FIW = Pe_{animal} * FID/(1-WC_{animal}) + Pe_{plant} * FID/(1-WC_{plant}). Source: Nagy (1987) cited in Sample et al. (1997)

c Based on equation: FID = (0.0582 (BW)^{0.651})/BW for birds. Source: Nagy (1987) cited in Sample et al. (1997)

d Based on diet composition of 33% plant and 67% animal (dry weight) converted to wet weight basis. Source: Swanson et al. (1985) cited in USEPA (1993d)

Pe_{animal} = (fraction animal tissue dry/(1-fraction water content animal tissue)) / ((fraction animal tissue dry/(1-fraction water content animal tissue)) + (fraction plant tissue dry/(1-fraction water content plant tissue)))

Pe_{plant} = (fraction plant tissue dry/(1-fraction water content plant tissue)) / ((fraction animal tissue dry/(1-fraction water content animal tissue)) + (fraction plant tissue dry/(1-fraction water content plant tissue)))

e Average % moisture measured in invertebrate tissue samples at Wells G&H Superfund Site (USEPA, 2004)

f Average % moisture measured in plant tissue samples at Wells G&H Superfund Site (USEPA, 2004)

g A conservative value for incidental sediment ingestion equivalent of 3.3% of diet (dry weight). Source: Beyer et al. (1994)

h Based on equation: SI_{water} = (0.059 (BW)^{0.67})/BW for birds. Source: Calder and Braun (1983) cited in Sample et al. (1997)

i Based on home range smaller than the exposure area. Source: USEPA (1993d)

j Assumes migration, population present onsite six months per year

k Assumes 100% bioavailability of COPC

TABLE 5
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Shrew - UCLs

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	A6, BE-1, BE-2, BE-4, HB02-2, HB03-3, HB04, Ref	C	Chemical Concentration	see Appendix 7C.7	mg/kg or ug/L	see Appendix 7C.7	Dose _{load} (mg/kg BW-day) = $((FIW \times Pe_{animal} \times C_{animal}) \times ASUF \times TSUF)$
		BW	Body Weight	0.015	kg	a	
		FIW	Food Intake Rate, wet	0.6	kg food _{wet} / kg BW _{wet} * day	b	
		FID	Food Intake Rate, dry	0.095	kg food _{dry} / kg BW _{wet} * day	c	
		Pe _{animal}	Animal Food Source Dietary Percentage	0.314	fraction on a wet weight basis	d	
		WC _{animal}	Water content (% moisture), animal tissue	0.84		e	
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.13	fraction on a dry weight basis (kg sed _{dry} / kg food _{dry})	f	
		SI _{water}	Surface Water Ingested	0.22	L _{water} / kg BW _{wet} * day	g	
		ASUF	Areal Site Use Factor	1	--	h	Dose _{water} (mg/kg BW-day) = $SI_{water} \times C_{water} \times CF \times ASUF \times TSUF$
		TSUF	Temporal Site Use Factor	1	--	i	
		SBAF	Soil/Sed Bioavailability Factor	1	--	j	
		CF	Conversion Factor	0.001	mg/ug	--	

a Based on adult. Source: Schlessinger and Potter (1974) cited in Sample and Suter (1994)

b Source: Barrett & Stuek (1976) cited in USEPA (1993d)

c Wet food intake rate converted to dry food intake rate using the following formula: FID = FIW * (1-WC_{animal}). Source: Sample (1997)

d Based on diet composition 31.4% earthworms (wet weight). Source: Whitaker and Ferraro (1963) cited in Sample and Suter (1994). The remainder of the diet is assumed to consist of terrestrial invertebrates containing significantly lower COPC body burdens.

e Average % moisture measured in earthworm tissue. Source: Sample and Suter (1994)

f A conservative value for incidental sediment ingestion equivalent of 13% of diet (dry weight). Source: Talmage and Walton (1993) cited in Sample and Suter (1994)

g Based on Chew (1951) cited in Sample and Suter (1994)

h Based on home range smaller than the exposure area. Source: USEPA (1993d)

i Assumes no migration, population present year-round

j Assumes 100% bioavailability of COPC

APPENDIX 7C.7

EXPOSURE POINT CONCENTRATIONS - UCLs

TABLE 1 - SUMMARY INFORMATION - SEDIMENT AND SOIL STATION UCL^s¹

Notes

NA - Not Analyzed or Not Available

UCL = Upper Confidence Limit

Only parameters selected as COPCs for each receptor have been presented. Remaining parameters have been shaded.

Ref - Reference

¹ The lesser value of the 95% UCL concentration and maximum detected concentration, as used in the maximum exposure case calculations, is provided.

2 UCI, References:

- * Maximum detected value is shown
 - 1 Sample size too small to calculate 95% UCL (<4)
 - 2 Normal data - Student's-t
 - 3 Approximate Gamma UCL
 - 4 Adjusted Gamma UCL
 - 5 Lognormal data - H-UCL
 - 6 Lognormal data - 95% Chebyshev (MVUE) UCL
 - 7 Lognormal data - 97.5% Chebyshev (MVUE) UCL
 - 8 Lognormal data - 99% Chebyshev (MVUE) UCL
 - 9 Nonparametric data - CLT
 - 10 Nonparametric data - Adj. CLT
 - 11 Nonparametric data - Mod t
 - 12 Nonparametric data - Jackknife
 - 13 Nonparametric data - Standard Bootstrap
 - 14 Nonparametric data - Bootstrap-t
 - 15 Nonparametric data - Hall's Bootstrap
 - 16 Nonparametric data - Percentile Bootstrap
 - 17 Nonparametric data - BCA Bootstrap
 - 18 Nonparametric data - 95% Chebyshew (Mean, Std)
 - 19 Nonparametric data - 97.5% Chebyshev (Mean, Std)
 - 20 Nonparametric data - 99% Chebyshev (Mean, Std)
 - 21 Maximum concentration < calculated UCL
 - 22 Data contains constant observations

TABLE 3. SUMMARY INFORMATION - BENTHIC INVERTEBRATE TISSUE STATION UCL¹

Receptor:	Muskrat												Mallard								Heron				Otter					
	MC-06	UCL Ref ²	MC-08	UCL Ref ²	MC-09	UCL Ref ²	MC-11	UCL Ref ²	MC-13	UCL Ref ²	HBHA wetland	UCL Ref ²	Sitewide	UCL Ref ²	Ref	UCL Ref ²	HBHA wetland	UCL Ref ²	HBHA pond	UCL Ref ²	Sitewide	UCL Ref ²	Ref	UCL Ref ²	Sitewide	UCL Ref ²	Ref	UCL Ref ²		
Metals - Total (mg/Kg)																														
Aluminum	300	*1	21	*1	18	*1	32	*1	200	*1	32	*1	237	2	125	2	32	*1	300	*1	237	2	125	2						
Antimony	0.25	*1	0.25	*1	0.25	*1	0.25	*1	0.25	*1	0.25	*1	0.25	22	0.25	22	0.25	*1	0.25	*1	0.25	22	0.25	22						
Arsenic	26	*1	5.8	*1	8.3	*1	4.3	*1	9.8	*1	8.3	*1	19	2	0.87	2	8.3	*1	26	*1	19	2	0.87	2						
Barium																														
Cadmium	0.57	*1	0.25	*1	0.25	*1	0.25	*1	0.25	*1	0.25	*1	0.46	11	0.25	22														
Chromium	16	*1	1.4	*1	1.7	*1	2.2	*1	16	*1	2.2	*1	16	*21	4.9	*21	2.2	*1	16	*1	16	*21	4.9	*21						
Cobalt	5.0	*1	5.0	*1	5.0	*1	5.0	*1	5.0	*1	5.0	*1	5.0	22	5.0	22														
Copper	22	*1	5.0	*1	20	*1	5.0	*1	18	*1	20	*1	22	2	5.0	22														
Lead	13	*1	0.50	*1	0.50	*1	1.1	*1	8.1	*1	1.1	*1	10	2	5.8	2	1.1	*1	13	*1	10	2	5.8	2						
Manganese																														
Mercury																														
Selenium	0.25	*1	0.25	*1	0.25	*1	0.25	*1	0.25	*1	0.25	*1	0.25	22	0.25	22	0.050	*1	0.050	*1	0.050	*1	0.050	*1	0.050	*1	0.050	*1		
Thallium																														
Vanadium	1.0	*1	0.25	*1	0.25	*1	0.25	*1	0.97	*1	0.25	*1	1.0	*21	0.78	2	35	*1	160	*1	156	3	17	*21	156	3	17	*21		
Zinc	160	*1	35	*1	27	*1	26	*1	46	*1	35	*1	156	3	17	*21	35	*1	160	*1	156	3	17	*21						

Notes

NA - Not Analyzed or Not Available

UCL = Upper Confidence Limit

Only parameters selected as COPCs for each receptor have been presented. Remaining parameters have been shaded.

Ref - Reference

¹ The lesser value of the 95% UCL concentration and maximum detected concentration, as used in the maximum exposure case calculations, is provided.

² UCL References:

- * Maximum detected value is shown
- 1 Sample size too small to calculate 95% UCL (<4)
- 2 Normal data - Student's-t
- 3 Approximate Gamma UCL
- 4 Adjusted Gamma UCL
- 5 Lognormal data - H-UCL
- 6 Lognormal data - 95% Chebyshev (MVUE) UCL
- 7 Lognormal data - 97.5% Chebyshev (MVUE) UCL
- 8 Lognormal data - 99% Chebyshev (MVUE) UCL
- 9 Nonparametric data - CLT
- 10 Nonparametric data - Adj. CLT
- 11 Nonparametric data - Mod t
- 12 Nonparametric data - Jackknife
- 13 Nonparametric data - Standard Bootstrap
- 14 Nonparametric data - Bootstrap-t
- 15 Nonparametric data - Hall's Bootstrap
- 16 Nonparametric data - Percentile Bootstrap
- 17 Nonparametric data - BCA Bootstrap
- 18 Nonparametric data - 95% Chebyshev (Mean, Std)
- 19 Nonparametric data - 97.5% Chebyshev (Mean, Std)
- 20 Nonparametric data - 99% Chebyshev (Mean, Std)
- 21 Maximum concentration < calculated UCL
- 22 Data contains constant observations

TABLE 4. SUMMARY INFORMATION - PLANT TISSUE STATION UCL¹

Parameter	Receptor:	Muskrat												Mallard										
		MC-06	UCL Ref ²	MC-08	UCL Ref ²	MC-09	UCL Ref ²	MC-11	UCL Ref ²	HBHA wetland	UCL Ref ²	Sitewide	UCL Ref ²	Ref	UCL Ref ²	HBHA wetland	UCL Ref ²	HBHA pond	UCL Ref ²	UCL Ref ²	UCL Ref ²	Ref	UCL Ref ²	
Metals - Total (mg/Kg)																								
Aluminum		64	*21	663	8	197	3	210	*21	256	6	201	5	224	3	256	6	64	*21	201	5	224	3	
Antimony		0.25	22	0.41	11	0.25	22	0.25	22	0.33	11	0.32	11	0.25	22	0.32	11	0.25	22	0.31	11	0.25	22	
Arsenic		43	*21	77	3	21	2	53	*21	40	3	37	3	3.6	3	40	3	43	*21	37	3	3.6	3	
Barium																								
Cadmium		0.25	22	2.0	18	0.45	11	0.25	22	1.2	18	1.0	18	0.25	22									
Chromium		3.1	*21	29	*21	7.8	3	8.1	*21	19	20	17	20	3.1	18	19	20	3.1	*21	17	20	3.1	18	
Cobalt		5.0	22	22	18	5.0	22	5.0	22	9.7	11	9.0	11	5.0	22									
Copper		17	2	32	18	8.2	11	10	11	19	18	18	18	5.0	22									
Lead		5.2	2	33	*21	4.4	3	5.5	*21	21	20	19	20	15	20	21	20	5.2	2	19	20	15	20	
Manganese																								
Mercury																0.050	22	0.050	22	0.050	22	0.050	22	
Selenium		0.25	22	0.33	11	0.25	22	0.25	22	0.29	11	0.28	11	0.25	22									
Thallium																								
Vanadium		0.25	22	2.2	18	0.93	18	0.93	*21	1.3	18	1.2	18	2.1	18	1164	20	1164	20	71	2	1006	20	16
Zinc		71	2	2248	20	165	3	99	2	1164	20	1006	20	16	2	1164	20	71	2	1006	20	16	2	

Notes

NA - Not Analyzed or Not Available

UCL = Upper Confidence Limit

Only parameters selected as COPCs for each receptor have been presented. Remaining parameters have been shaded.

Ref - Reference

¹ The lesser value of the 95% UCL concentration and maximum detected concentration, as used in the maximum exposure case calculations, is provided.

² UCL References:

* Maximum detected value is shown

1 Sample size too small to calculate 95% UCL (<4)

2 Normal data - Student's-t

3 Approximate Gamma UCL

4 Adjusted Gamma UCL

5 Lognormal data - H-UCL

6 Lognormal data - 95% Chebyshev (MVUE) UCL

7 Lognormal data - 97.5% Chebyshev (MVUE) UCL

8 Lognormal data - 99% Chebyshev (MVUE) UCL

9 Nonparametric data - CLT

10 Nonparametric data - Adj. CLT

11 Nonparametric data - Mod t

12 Nonparametric data - Jackknife

13 Nonparametric data - Standard Bootstrap

14 Nonparametric data - Bootstrap-t

15 Nonparametric data - Hall's Bootstrap

16 Nonparametric data - Percentile Bootstrap

17 Nonparametric data - BCA Bootstrap

18 Nonparametric data - 95% Chebyshev (Mean, Std)

19 Nonparametric data - 97.5% Chebyshev (Mean, Std)

20 Nonparametric data - 99% Chebyshev (Mean, Std)

21 Maximum concentration < calculated UCL

22 Data contains constant observations

TABLE 5. SUMMARY INFORMATION - SMALL FISH TISSUE STATION UCL¹

Parameter	Receptor:	Heron				Otter			
		Sitewide	UCL Ref ²	Ref	UCL Ref ²	Sitewide	UCL Ref ²	Ref	UCL Ref ²
Metals - Total (mg/Kg)									
Aluminum									
Antimony									
Arsenic					0.89	3	0.17	18	
Barium									
Cadmium									
Chromium	0.50	22	0.50	22					
Cobalt									
Copper									
Lead	0.50	22	0.50	22					
Manganese									
Mercury	0.050	22	0.10	11					
Selenium									
Thallium									
Vanadium									
Zinc	26	2	27	3					

Notes

NA - Not Analyzed or Not Available

UCL = Upper Confidence Limit

Only parameters selected as COPCs for each receptor have been presented.

Remaining parameters have been shaded.

Ref - Reference

¹ The lesser value of the 95% UCL concentration and maximum detected concentration, as used in the maximum exposure case calculations, is provided.

² UCL References:

- * Maximum detected value is shown
- 1 Sample size too small to calculate 95% UCL (<4)
- 2 Normal data - Student's-t
- 3 Approximate Gamma UCL
- 4 Adjusted Gamma UCL
- 5 Lognormal data - H-UCL
- 6 Lognormal data - 95% Chebyshev (MVUE) UCL
- 7 Lognormal data - 97.5% Chebyshev (MVUE) UCL
- 8 Lognormal data - 99% Chebyshev (MVUE) UCL
- 9 Nonparametric data - CLT
- 10 Nonparametric data - Adj. CLT
- 11 Nonparametric data - Mod t
- 12 Nonparametric data - Jackknife
- 13 Nonparametric data - Standard Bootstrap
- 14 Nonparametric data - Bootstrap-t
- 15 Nonparametric data - Hall's Bootstrap
- 16 Nonparametric data - Percentile Bootstrap
- 17 Nonparametric data - BCA Bootstrap
- 18 Nonparametric data - 95% Chebyshev (Mean, Std)
- 19 Nonparametric data - 97.5% Chebyshev (Mean, Std)
- 20 Nonparametric data - 99% Chebyshev (Mean, Std)
- 21 Maximum concentration < calculated UCL
- 22 Data contains constant observations

APPENDIX 7C.8

ESTIMATION OF UCL COPC CONCENTRATIONS IN EARTHWORM TISSUE - UCLs

TABLE 1
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
UCL EXPOSURE CASE
STATION A6
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	50	4.0
Arsenic	599	3.5
Barium	255	15
Chromium	1171	1.2
Copper	426	4.2
Lead	3561	94
Manganese	167	2.3
Mercury	9.3	0.10
Selenium	7.6	0.65
Thallium	20	1.6
Zinc	673	115

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

TABLE 2
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
UCL EXPOSURE CASE
STATION BE-1
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	1.1	0.087
Arsenic	29	0.42
Barium	64	3.6
Chromium	35	1.5
Copper	89	2.8
Lead	143	7.0
Manganese	174	2.4
Mercury	0.19	0.066
Selenium	2.8	0.31
Thallium	1.1	0.087
Zinc	489	103

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

TABLE 3
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
UCL EXPOSURE CASE
STATION BE-2
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	3.1	0.25
Arsenic	354	2.4
Barium	79	4.5
Chromium	73	1.4
Copper	201	3.4
Lead	199	9.1
Manganese	629	5.7
Mercury	0.38	0.071
Selenium	3.8	0.39
Thallium	2.7	0.21
Zinc	3200	192

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

TABLE 4
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
UCL EXPOSURE CASE
STATION BE-4
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	2.0	0.16
Arsenic	75	0.81
Barium	40	2.3
Chromium	182	1.3
Copper	88	2.8
Lead	290	12
Manganese	688	6.1
Mercury	0.19	0.066
Selenium	5.3	0.50
Thallium	1.7	0.13
Zinc	483	103

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

TABLE 5
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
UCL EXPOSURE CASE
STATION HB02-2
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	9.1	0.72
Arsenic	1035	5.2
Barium	171	9.8
Chromium	357	1.3
Copper	495	4.4
Lead	339	14
Manganese	2526	15
Mercury	0.97	0.080
Selenium	8.4	0.70
Thallium	15	1.2
Zinc	3516	198

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

TABLE 6
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
UCL EXPOSURE CASE
STATION HB03-3
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	7.0	0.56
Arsenic	338	2.3
Barium	118	6.8
Chromium	220	1.3
Copper	361	4.0
Lead	228	10
Manganese	1910	12
Mercury	1.2	0.082
Selenium	4.4	0.44
Thallium	4.1	0.33
Zinc	1588	152

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

TABLE 7
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
UCL EXPOSURE CASE
STATION HB04
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	0.84	0.066
Arsenic	26	0.39
Barium	15	0.83
Chromium	31	1.5
Copper	34	2.1
Lead	28	1.9
Manganese	87	1.5
Mercury	0.20	0.066
Selenium	0.66	0.11
Thallium	0.71	0.057
Zinc	64	53

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

TABLE 8
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
UCL EXPOSURE CASE
WETLAND REFERENCE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	1.0	0.083
Arsenic	33	0.45
Barium	72	4.1
Chromium	410	1.3
Copper	93	2.8
Lead	524	20
Manganese	210	2.7
Mercury	0.71	0.077
Selenium	1.7	0.22
Thallium	0.73	0.058
Zinc	232	81

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

APPENDIX 7C.9

WILDLIFE RECEPTORS - FOOD CHAIN MODELS - UCL CASE

**Tables 1 to 27 - Hazard Quotient Summary Tables
Tables 28 to 54 - Calculation Tables**

TABLE 1
MAXIMUM HAZARD QUOTIENTS FOR MUSKRAT - STATION AR
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	127	42	3	5.6	68.0	26.5	0.0
X Antimony	0.75	0.054	14	1.0	95.4	3.6	0.0
X Arsenic	19	1.6	12	3.0	89.4	7.6	0.0
Cadmium	0.32	0.78	0.4	4.3	89.5	6.2	0.0
Chromium	11	7.2	1	4.5	70.5	24.9	0.0
Cobalt	1.5	4.0	0.4	9.9	87.8	2.3	0.0
X Copper	32	12	3	2.1	88.0	10.0	0.0
X Lead	14	6.4	2	2.1	88.8	9.1	0.0
X Selenium	1.0	0.16	6	0.7	95.5	3.7	0.0
X Vanadium	0.64	0.16	4	4.7	78.5	16.8	0.0
Zinc	105	129	0.8	4.4	92.6	3.0	0.0
X <i>HAZARD INDEX</i>			47				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based NOAELs

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects-level

COPC = Chemical of potential concern

TABLE 2
HAZARD QUOTIENTS FOR MUSKRAT - STATION BE-1
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/Sediment HQ	Percent Surface Water HQ
Inorganics							
X	Aluminum	68	42	2	10.4	64.5	25.1
	Antimony	0.079	0.054	1	9.5	87.3	3.3
	Arsenic	1.4	1.6	0.9	39.6	55.6	4.8
	Cadmium	0.082	0.78	0.1	16.7	77.9	5.4
	Chromium	0.79	7.2	0.1	60.4	29.3	10.3
	Cobalt	0.78	4.0	0.2	19.1	78.8	2.1
	Copper	2.7	12	0.2	24.2	68.1	7.7
	Lead	3.9	6.4	0.6	7.7	83.7	8.6
	Selenium	0.18	0.16	1	4.1	92.3	3.6
X	Vanadium	0.43	0.16	3	6.9	76.7	16.4
X	Zinc	41	129	0.3	11.2	86.0	2.8
X	HAZARD INDEX			9			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based NOAELs

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 3
HAZARD QUOTIENTS FOR MUSKRAT - STATION BE-2
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	134	42	3	5.3	68.2	26.6	NA
X Antimony	0.21	0.054	4	3.6	92.9	3.5	NA
X Arsenic	11	1.6	7	5.1	87.4	7.5	NA
Cadmium	0.19	0.78	0.2	7.4	86.6	6.0	NA
Chromium	1.1	7.2	0.2	42.2	42.7	15.1	NA
Cobalt	2.8	4.0	0.7	5.3	92.3	2.4	NA
Copper	5.3	12	0.4	12.4	78.7	8.9	NA
Lead	5.3	6.4	0.8	5.6	85.6	8.8	NA
X Selenium	0.24	0.16	2	3.1	93.3	3.7	NA
X Vanadium	1.0	0.16	7	2.9	80.0	17.1	NA
X Zinc	245	129	2	1.9	95.0	3.1	NA
X HAZARD INDEX			26				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based NOAELs

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 4
HAZARD QUOTIENTS FOR MUSKRAT - STATION BE-3
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	91	42	2	7.7	66.4	25.9	NA
X Antimony	0.10	0.054	2	7.1	89.5	3.4	NA
X Arsenic	3.2	1.6	2	17.9	75.7	6.5	NA
Cadmium	0.13	0.78	0.2	11.0	83.2	5.8	NA
Chromium	0.89	7.2	0.1	53.8	34.1	12.1	NA
Cobalt	1.7	4.0	0.4	8.6	89.1	2.3	NA
Copper	2.6	12	0.2	25.2	67.2	7.6	NA
Lead	4.4	6.4	0.7	6.8	84.5	8.7	NA
Selenium	0.12	0.16	0.7	6.3	90.2	3.5	NA
X Vanadium	0.57	0.16	4	5.2	78.0	16.7	NA
Zinc	50	129	0.4	9.2	87.9	2.8	NA
X HAZARD INDEX			12				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based NOAELs

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 5
HAZARD QUOTIENTS FOR MUSKRAT - STATION HB01
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/Sediment HQ	Percent Surface Water HQ
Inorganics							
X	Aluminum	60	42	1	15.0	54.0	30.9
X	Antimony	0.16	0.054	3	4.7	79.2	15.8
X	Arsenic	23	1.6	14	3.4	93.5	3.1
	Cadmium	0.18	0.78	0.2	9.3	69.0	21.6
	Chromium	3.1	7.2	0.4	15.4	50.2	34.4
	Cobalt	2.7	4.0	0.7	5.5	92.4	2.1
	Copper	12	12	1	5.4	72.4	22.1
	Lead	4.3	6.4	0.7	9.0	60.8	30.2
	Selenium	0.14	0.16	0.9	5.2	87.7	7.0
	Vanadium	0.22	0.16	1	13.8	58.0	28.2
	Zinc	54	129	0.4	8.8	66.3	24.9
X	HAZARD INDEX		24				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based NOAELs

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 6
HAZARD QUOTIENTS FOR MUSKRAT - STATION HB02-2
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	365	42	9	0.2	91.5	8.3	0.0
X Antimony	0.23	0.054	4	3.2	89.7	7.0	0.1
X Arsenic	41	1.6	26	0.4	94.7	4.8	0.0
Cadmium	1.1	0.78	1	0.7	92.6	6.7	0.0
X Chromium	16	7.2	2	0.3	93.0	6.8	0.0
X Cobalt	12	4.0	3	1.3	97.1	1.6	0.0
Copper	18	12	1	0.8	89.6	9.5	0.0
X Lead	17	6.4	3	0.1	95.5	4.4	0.0
Selenium	0.18	0.16	1	4.1	92.0	3.8	0.1
X Vanadium	1.2	0.16	8	0.6	89.9	9.5	0.0
X Zinc	1149	129	9	0.1	98.4	1.5	0.0
X HAZARD INDEX			67				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based NOAELs

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 7
HAZARD QUOTIENTS FOR MUSKRAT - STATION HB03-1
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	154	42	4	0.6	83.5	15.9	0.0
X Antimony	0.18	0.054	3	4.2	92.7	3.0	0.2
X Arsenic	21	1.6	13	1.2	93.1	5.8	0.0
Cadmium	0.62	0.78	0.8	1.2	94.2	4.6	0.0
Chromium	11	7.2	1	0.6	91.1	8.3	0.0
Cobalt	5.1	4.0	1	2.9	95.0	2.1	0.0
Copper	11	12	0.9	5.3	86.6	8.1	0.0
X Lead	11	6.4	2	0.3	97.2	2.5	0.0
Selenium	0.16	0.16	1	4.7	91.2	4.0	0.1
X Vanadium	0.75	0.16	5	1.0	90.5	8.5	0.0
X Zinc	594	129	5	0.2	98.5	1.3	0.0
X HAZARD INDEX			37				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based NOAELs

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 8
HAZARD QUOTIENTS FOR MUSKRAT - STATION HB03-2
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	136	42	3	0.7	77.5	21.8	0.0
X Antimony	0.14	0.054	3	5.3	88.6	5.9	0.2
X Arsenic	29	1.6	18	0.4	93.1	6.4	0.0
Cadmium	0.18	0.78	0.2	4.1	69.1	26.8	0.0
Chromium	5.3	7.2	0.7	1.2	76.3	22.5	0.0
Cobalt	2.8	4.0	0.7	5.4	91.2	3.4	0.0
Copper	7.0	12	0.6	2.1	73.8	24.0	0.0
Lead	3.4	6.4	0.5	1.0	80.4	18.6	0.0
Selenium	0.14	0.16	0.9	5.2	87.7	7.0	0.1
X Vanadium	0.57	0.16	4	1.3	81.5	17.2	0.0
Zinc	63	129	0.5	1.2	79.6	19.1	0.0
X HAZARD INDEX			31				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based NOAELs

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 9
HAZARD QUOTIENTS FOR MUSKRAT - STATION MC-09
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	141	42	3	0.4	70.4	29.2	0.0
X Antimony	0.15	0.054	3	4.9	83.2	11.3	0.6
X Arsenic	13	1.6	8	1.9	83.5	14.5	0.0
Cadmium	0.30	0.78	0.4	2.5	74.6	23.0	0.0
Chromium	5.5	7.2	0.8	0.9	71.7	27.4	0.0
Cobalt	2.8	4.0	0.7	5.3	88.5	6.2	0.0
Copper	7.3	12	0.6	8.2	56.2	35.6	0.0
Lead	3.2	6.4	0.5	0.5	70.3	29.3	0.0
Selenium	0.15	0.16	0.9	5.1	86.0	8.8	0.0
X Vanadium	0.61	0.16	4	1.2	76.8	21.9	0.1
Zinc	101	129	0.8	0.8	82.1	17.1	0.0
X HAZARD INDEX			23				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based NOAELs

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 10
HAZARD QUOTIENTS FOR MUSKRAT - STATION MC-13
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	150	42	4	4.0	67.7	28.3	0.0
X Antimony	0.17	0.054	3	4.3	91.4	3.8	0.5
X Arsenic	20	1.6	12	1.5	94.4	4.0	0.0
Cadmium	0.54	0.78	0.7	1.4	96.3	2.3	0.0
X Chromium	11	7.2	2	4.2	75.9	19.9	0.0
Cobalt	4.7	4.0	1	3.2	95.8	1.1	0.0
Copper	11	12	0.9	5.0	84.4	10.6	0.0
X Lead	11	6.4	2	2.2	84.2	13.6	0.0
Selenium	0.16	0.16	1	4.8	92.0	3.2	0.0
X Vanadium	0.78	0.16	5	3.7	76.8	19.4	0.1
X Zinc	510	129	4	0.3	99.2	0.6	0.0
X HAZARD INDEX			35				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based NOAELs

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 11
HAZARD QUOTIENTS FOR MUSKRAT - REFERENCE POND
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	138	42	3	2.7	81.9	15.3	0.1
X Antimony	0.14	0.054	3	5.5	92.2	1.6	0.7
Arsenic	1.9	1.6	1	1.4	95.7	2.8	0.0
Cadmium	0.14	0.78	0.2	5.4	91.6	2.9	0.0
Chromium	2.4	7.2	0.3	6.0	64.8	29.1	0.0
Cobalt	2.7	4.0	0.7	5.6	93.6	0.8	0.0
Copper	2.8	12	0.2	5.3	88.8	5.9	0.0
Lead	8.6	6.4	1	2.0	90.1	7.9	0.0
Selenium	0.14	0.16	0.9	5.4	91.8	2.7	0.1
X Vanadium	1.2	0.16	8	2.0	89.4	8.6	0.0
Zinc	8.9	129	<0.1	5.7	88.7	5.6	0.0
X HAZARD INDEX			18				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based NOAELs

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 12
HAZARD QUOTIENTS FOR RIVER OTTER - SITEWIDE
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Invertebrate HQ	Percent Fish HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
Arsenic <i>HAZARD INDEX</i>	0.74	0.92	0.8 0.8	44.3	9.6	44.9	1.2

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on NOAEL

X = Indicates a COPC with a HQ > 1

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 13
HAZARD QUOTIENTS FOR RIVER OTTER - REFERENCE
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Invertebrate HQ	Percent Fish HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
Arsenic <i>HAZARD INDEX</i>	0.037	0.92	<0.1 0.0	36.4	36.4	26.5	0.6

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on NOAEL

X = Indicates a COPC with a HQ > 1

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 14
HAZARD QUOTIENTS FOR HERON - SITEWIDE
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Invertebrate HQ	Percent Fish HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Inorganics							
Chromium	0.95	1.0	1	87.8	2.2	9.9	0.0
Lead	0.62	1.1	0.5	85.2	3.5	11.3	0.0
Mercury	0.0052	0.0064	0.8	50.6	41.4	8.0	0.1
Zinc	10	15	0.7	78.4	10.6	10.8	0.1
X HAZARD INDEX			3				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects-level

COPC = Chemical of potential concern

TABLE 15
HAZARD QUOTIENTS FOR HERON - REFERENCE
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Invertebrate HQ	Percent Fish HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Inorganics							
Chromium	0.35	1.0	0.3	74.1	6.2	19.7	0.0
Lead	0.39	1.1	0.3	77.2	5.5	16.9	0.4
Mercury	0.0070	0.0064	1	37.3	61.6	1.1	0.1
Zinc	2.1	15	0.1	42.2	55.4	2.3	0.1
X HAZARD INDEX			2				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects-level

COPC = Chemical of potential concern

TABLE 16
HAZARD QUOTIENTS FOR MALLARD - SITEWIDE
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Inorganics							
Aluminum	44	110	0.4	43.7	34.0	22.2	0.0
Antimony	0.050	0.13	0.4	40.7	46.8	12.2	0.3
Arsenic	4.8	5.1	0.9	32.7	57.5	9.8	0.0
x Chromium	2.9	1.0	3	44.8	43.5	11.7	0.0
x Lead	2.5	1.1	2	33.3	56.4	10.3	0.0
Mercury	0.0093	0.0064	1	43.7	40.0	16.2	0.0
x Zinc	91	15	6	13.9	82.1	4.0	0.0
x <i>HAZARD INDEX</i>			15				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on NOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 17
HAZARD QUOTIENTS FOR MALLARD - HBHA POND
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Inorganics							
Aluminum	37	110	0.3	66.7	13.0	20.2	0.0
Antimony	0.049	0.13	0.4	41.3	37.8	20.4	0.5
Arsenic	5.6	5.1	1	37.7	57.1	5.2	0.0
X Chromium	2.0	1.0	2	66.4	11.8	21.9	0.0
X Lead	2.0	1.1	2	53.7	19.7	26.6	0.0
Mercury	0.0094	0.0064	1	43.1	39.5	17.4	0.0
X Zinc	24	15	2	54.8	22.4	22.7	0.0
X HAZARD INDEX			9				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on NOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 18
HAZARD QUOTIENTS FOR MALLARD - HBHA WETLAND
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Inorganics							
Aluminum	33	110	0.3	8.0	58.4	33.6	0.0
Antimony	0.050	0.13	0.4	40.6	48.2	11.0	0.2
Arsenic	4.3	5.1	0.8	15.8	69.5	14.7	0.0
X Chromium	2.0	1.0	2	8.9	72.2	18.9	0.0
X Lead	1.9	1.1	2	4.7	82.8	12.5	0.0
Mercury	0.0096	0.0064	1	42.5	39.0	18.5	0.0
X Zinc	95	15	7	3.0	91.7	5.3	0.0
X HAZARD INDEX			13				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on NOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects-level

TABLE 19
HAZARD QUOTIENTS FOR MALLARD - REFERENCE
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Inorganics							
Aluminum	35	110	0.3	28.7	47.2	23.9	0.1
Antimony	0.040	0.13	0.3	50.7	46.4	2.2	0.7
Arsenic	0.36	5.1	<0.1	19.7	74.3	6.0	0.1
Chromium	0.91	1.0	0.9	43.7	25.4	30.9	0.0
x Lead	1.9	1.1	2	24.8	60.8	14.4	0.1
Mercury	0.0081	0.0064	1	50.1	45.9	3.9	0.0
Zinc	2.8	15	0.2	50.1	42.6	7.2	0.0
x <i>HAZARD INDEX</i>			5				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on NOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 20
HAZARD QUOTIENTS FOR SHREW - STATION A6
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
X Antimony	1.4	0.15	9	54.8	45.2	NA
X Arsenic	8.1	0.15	54	8.2	91.8	NA
Barium	5.9	12	0.5	46.6	53.4	NA
Chromium	15	20	0.7	1.5	98.5	NA
Copper	6.1	33	0.2	13.0	87.0	NA
X Lead	62	18	4	28.7	71.3	NA
Manganese	2.5	193	<0.1	17.5	82.5	NA
X Mercury	0.13	0.070	2	14.6	85.4	NA
Selenium	0.22	0.44	0.5	56.7	43.3	NA
X Thallium	0.55	0.16	3	54.8	45.2	NA
Zinc	30	352	<0.1	72.3	27.7	NA
X HAZARD INDEX			74			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on NOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 21
HAZARD QUOTIENTS FOR SHREW - STATION BE-1
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
X Antimony	0.030	0.15	0.2	54.8	45.2	NA
X Arsenic	0.44	0.15	3	17.8	82.2	NA
Barium	1.5	12	0.1	46.6	53.4	NA
Chromium	0.71	20	<0.1	39.5	60.5	NA
Copper	1.6	33	<0.1	32.2	67.8	NA
Lead	3.1	18	0.2	42.8	57.2	NA
Manganese	2.6	193	<0.1	17.3	82.7	NA
Mercury	0.015	0.070	0.2	84.1	15.9	NA
Selenium	0.094	0.44	0.2	63.1	36.9	NA
Thallium	0.030	0.16	0.2	54.8	45.2	NA
Zinc	26	352	<0.1	76.4	23.6	NA
X HAZARD INDEX			4			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on NOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 22
HAZARD QUOTIENTS FOR SHREW - STATION BE-2
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
X Antimony	0.085	0.15	0.6	54.8	45.2	NA
X Arsenic	4.8	0.15	32	9.4	90.6	NA
Barium	1.8	12	0.2	46.6	53.4	NA
Chromium	1.2	20	<0.1	23.0	77.0	NA
Copper	3.1	33	<0.1	20.7	79.3	NA
Lead	4.2	18	0.2	41.2	58.8	NA
Manganese	8.8	193	<0.1	12.2	87.8	NA
Mercury	0.018	0.070	0.3	74.1	25.9	NA
Selenium	0.12	0.44	0.3	61.2	38.8	NA
Thallium	0.074	0.16	0.4	54.8	45.2	NA
Zinc	76	352	0.2	47.7	52.3	NA
X HAZARD INDEX			35			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on NOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 23
HAZARD QUOTIENTS FOR SHREW - STATION BE-4
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/Sediment HQ	Percent Surface Water HQ
Inorganics						
X Antimony	0.055	0.15	0.4	54.8	45.2	NA
X Arsenic	1.1	0.15	7	14.1	85.9	NA
Barium	0.92	12	<0.1	46.6	53.4	NA
Chromium	2.5	20	0.1	10.1	89.9	NA
Copper	1.6	33	<0.1	32.4	67.6	NA
Lead	5.9	18	0.3	39.5	60.5	NA
Manganese	9.6	193	<0.1	11.9	88.1	NA
Mercury	0.015	0.070	0.2	84.4	15.6	NA
Selenium	0.16	0.44	0.4	59.0	41.0	NA
Thallium	0.046	0.16	0.3	54.8	45.2	NA
Zinc	25	352	<0.1	76.5	23.5	NA
X HAZARD INDEX			9			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on NOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 24
HAZARD QUOTIENTS FOR SHREW - STATION HB02-2
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
X Antimony	0.25	0.15	2	54.6	45.1	0.2
X Arsenic	14	0.15	92	7.1	92.9	0.0
Barium	4.0	12	0.3	46.5	53.3	0.2
Chromium	4.7	20	0.2	5.2	94.8	0.0
Copper	6.9	33	0.2	11.8	88.1	0.0
Lead	6.8	18	0.4	38.7	61.2	0.0
Manganese	34	193	0.2	8.2	91.5	0.4
Mercury	0.027	0.070	0.4	55.7	44.2	0.0
Selenium	0.24	0.44	0.5	55.9	43.9	0.1
X Thallium	0.41	0.16	2	54.7	45.2	0.1
Zinc	81	352	0.2	46.1	53.8	0.0
X HAZARD INDEX			98			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on NOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 25
HAZARD QUOTIENTS FOR SHREW - STATION HB03-3
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
Antimony	0.19	0.15	1	54.6	45.1	0.3
X Arsenic	4.6	0.15	31	9.5	90.3	0.1
Barium	2.7	12	0.2	46.4	53.3	0.3
Chromium	3.0	20	0.2	8.4	91.6	0.0
Copper	5.2	33	0.2	14.5	85.5	0.0
Lead	4.7	18	0.3	40.6	59.4	0.0
Manganese	26	193	0.1	8.8	90.7	0.5
Mercury	0.030	0.070	0.4	50.7	49.2	0.0
Selenium	0.14	0.44	0.3	60.1	39.7	0.3
Thallium	0.11	0.16	0.7	54.5	45.1	0.4
Zinc	48	352	0.1	59.4	40.6	0.1
X HAZARD INDEX			35			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on NOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 26
HAZARD QUOTIENTS FOR SHREW - STATION HB04
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
Antimony	0.023	0.15	0.2	53.4	44.1	2.5
X Arsenic	0.40	0.15	3	18.0	80.4	1.7
Barium	0.35	12	<0.1	45.5	52.2	2.3
Chromium	0.67	20	<0.1	42.7	57.1	0.2
Copper	0.83	33	<0.1	49.0	50.7	0.2
Lead	0.70	18	<0.1	50.5	49.4	0.1
Manganese	1.5	193	<0.1	19.0	72.8	8.2
Mercury	0.015	0.070	0.2	83.2	16.7	0.1
Selenium	0.029	0.44	<0.1	70.6	28.2	1.2
Thallium	0.020	0.16	0.1	53.5	44.2	2.2
Zinc	11	352	<0.1	92.4	7.3	0.3
X HAZARD INDEX			3			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on NOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 27
HAZARD QUOTIENTS FOR SHREW - REFERENCE
UCL CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
Antimony	0.029	0.15	0.2	54.5	45.0	0.4
X Arsenic	0.49	0.15	3	17.3	82.5	0.1
Barium	1.7	12	0.1	46.3	53.1	0.6
Chromium	5.3	20	0.3	4.5	95.5	0.0
Copper	1.7	33	<0.1	31.4	68.5	0.1
Lead	10	18	0.6	36.8	63.2	0.0
Manganese	3.2	193	<0.1	15.9	80.6	3.6
Mercury	0.023	0.070	0.3	62.2	37.7	0.1
Selenium	0.062	0.44	0.1	65.9	33.7	0.3
Thallium	0.020	0.16	0.1	54.3	44.9	0.8
Zinc	18	352	<0.1	84.2	15.8	0.0
X HAZARD INDEX			5			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on NOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

NOAEL = No-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 28. UCL EXPOSURE CALCULATIONS FOR MUSKRAT - STATION AR

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	AR	AR	Sitewide	Sed*UF ¹	NOAEL															
Inorganics																				
X Aluminum	14401	130	237	172	42	7.08E+00	8.66E+01	9.37E+01	3.37E+01	1.31E-02	1.27E+02	2E-01	2E+00	8E-01	3E-04	3E+00	5.6%	68.0%	26.5%	0.0%
X Antimony	12	1.2	0.25	1.4	0.054	7.46E-03	7.20E-01	7.27E-01	2.69E-02	1.20E-04	7.55E-01	1E-01	1E+01	5E-01	2E-03	1E+01	1.0%	95.4%	3.6%	0.0%
X Arsenic	624	21	19	34	1.6	5.72E-01	1.71E+01	1.77E+01	1.46E+00	2.14E-03	1.91E+01	4E-01	1E+01	9E-01	1E-03	1E+01	3.0%	89.4%	7.6%	0.0%
Cadmium	8.6	0.19	0.46	0.57	0.78	1.38E-02	2.88E-01	3.02E-01	2.00E-02	1.97E-05	3.22E-01	2E-02	4E-01	3E-02	3E-05	4E-01	4.3%	89.5%	6.2%	0.0%
Chromium	1120	2.6	16	15	7.2	4.78E-01	7.43E+00	7.91E+00	2.62E+00	2.59E-04	1.05E+01	7E-02	1E+00	4E-01	4E-05	1E+00	4.5%	70.5%	24.9%	0.0%
Cobalt	15	0.59	5.0	2.6	4.0	1.49E-01	1.33E+00	1.48E+00	3.49E-02	5.93E-05	1.52E+00	4E-02	3E-01	9E-03	1E-05	4E-01	9.9%	87.8%	2.3%	0.0%
X Copper	1340	5.2	22	55	12	6.55E-01	2.77E+01	2.84E+01	3.14E+00	5.24E-04	3.15E+01	5E-02	2E+00	3E-01	4E-05	3E+00	2.1%	88.0%	10.0%	0.0%
X Lead	554	2.1	10	25	6.4	3.00E-01	1.27E+01	1.30E+01	1.30E+00	2.11E-04	1.43E+01	5E-02	2E+00	2E-01	3E-05	2E+00	2.1%	88.8%	9.1%	0.0%
X Selenium	16	1.5	0.25	1.9	0.16	7.46E-03	9.51E-01	9.58E-01	3.73E-02	1.53E-04	9.96E-01	5E-02	6E+00	2E-01	9E-04	6E+00	0.7%	95.5%	3.7%	0.0%
X Vanadium	46	0.53	1.0	0.99	0.16	2.98E-02	5.00E-01	5.30E-01	1.07E-01	5.38E-05	6.37E-01	2E-01	3E+00	7E-01	3E-04	4E+00	4.7%	78.5%	16.8%	0.0%
Zinc	1336	45	156	193	129	4.65E+00	9.73E+01	1.02E+02	3.13E+00	4.54E-03	1.05E+02	4E-02	8E-01	2E-02	4E-05	8E-01	4.4%	92.6%	3.0%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

1 Plant tissue concentration was not measured at this station. Concentration is estimated from concentration in the sediment multiplied by an uptake factor (UF).

TABLE 29. UCL EXPOSURE CALCULATIONS FOR MUSKRAT - STATION BE-1

Compound	C Sediment (mg/Kg)	C Water (ug/L)	C Animal (mg/Kg)	C Plant (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	BE-1	No SW	Sitewide	Sed*UF ¹	NOAEL															
Inorganics																				
X Aluminum	7330	NA	237	88	42	7.08E+00	4.41E+01	5.12E+01	1.72E+01	NA	6.83E+01	2E-01	1E+00	4E-01	NA	2E+00	10.4%	64.5%	25.1%	NA
Antimony	1.1	NA	0.25	0.14	0.054	7.46E-03	6.89E-02	7.63E-02	2.58E-03	NA	7.89E-02	1E-01	1E+00	5E-02	NA	1E+00	9.5%	87.3%	3.3%	NA
Arsenic	29	NA	19	1.6	1.6	5.72E-01	8.03E-01	1.38E+00	6.86E-02	NA	1.44E+00	4E-01	5E-01	4E-02	NA	9E-01	39.6%	55.6%	4.8%	NA
Cadmium	1.9	NA	0.46	0.13	0.78	1.38E-02	6.40E-02	7.78E-02	4.45E-03	NA	8.23E-02	2E-02	8E-02	6E-03	NA	1E-01	16.7%	77.9%	5.4%	NA
Chromium	35	NA	16	0.46	7.2	4.78E-01	2.32E-01	7.09E-01	8.18E-02	NA	7.91E-01	7E-02	3E-02	1E-02	NA	1E-01	60.4%	29.3%	10.3%	NA
Cobalt	6.9	NA	5.0	1.2	4.0	1.49E-01	6.16E-01	7.65E-01	1.62E-02	NA	7.81E-01	4E-02	2E-01	4E-03	NA	2E-01	19.1%	78.8%	2.1%	NA
Copper	89	NA	22	3.7	12	6.55E-01	1.84E+00	2.49E+00	2.09E-01	NA	2.70E+00	5E-02	2E-01	2E-02	NA	2E-01	24.2%	68.1%	7.7%	NA
Lead	143	NA	10	6.5	6.4	3.00E-01	3.27E+00	3.57E+00	3.35E-01	NA	3.91E+00	5E-02	5E-01	5E-02	NA	6E-01	7.7%	83.7%	8.6%	NA
X Selenium	2.8	NA	0.25	0.33	0.16	7.46E-03	1.67E-01	1.75E-01	6.56E-03	NA	1.81E-01	5E-02	1E+00	4E-02	NA	1E+00	4.1%	92.3%	3.6%	NA
Vanadium	30	NA	1.0	0.66	0.16	2.98E-02	3.33E-01	3.62E-01	7.12E-02	NA	4.34E-01	2E-01	2E+00	5E-01	NA	3E+00	6.9%	76.7%	16.4%	NA
Zinc	489	NA	156	71	129	4.65E+00	3.56E+01	4.02E+01	1.15E+00	NA	4.14E+01	4E-02	3E-01	9E-03	NA	3E-01	11.2%	86.0%	2.8%	NA

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

1 Plant tissue concentration was not measured at this station. Concentration is estimated from concentration in the sediment multiplied by an uptake factor (UF).

TABLE 30. UCL EXPOSURE CALCULATIONS FOR MUSKRAT - STATION BE-2

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Animal (mg/Kg)	C_Plant (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	BE-2	No SW	Sitewide	Sed*UF ¹	NOAEL															
Inorganics																				
X Aluminum	15200	NA	237	182	42	7.08E+00	9.14E+01	9.85E+01	3.56E+01	NA	1.34E+02	2E-01	2E+00	9E-01	NA	3E+00	5.3%	68.2%	26.6%	NA
X Antimony	3.1	NA	0.25	0.39	0.054	7.46E-03	1.94E-01	2.02E-01	7.26E-03	NA	2.09E-01	1E-01	4E+00	1E-01	NA	4E+00	3.6%	92.9%	3.5%	NA
X Arsenic	354	NA	19	19	1.6	5.72E-01	9.71E+00	1.03E+01	8.30E-01	NA	1.11E+01	4E-01	6E+00	5E-01	NA	7E+00	5.1%	87.4%	7.5%	NA
Cadmium	4.8	NA	0.46	0.32	0.78	1.38E-02	1.60E-01	1.74E-01	1.12E-02	NA	1.85E-01	2E-02	2E-01	1E-02	NA	2E-01	7.4%	86.6%	6.0%	NA
Chromium	73	NA	16	0.96	7.2	4.78E-01	4.83E-01	9.61E-01	1.71E-01	NA	1.13E+00	7E-02	7E-02	2E-02	NA	2E-01	42.2%	42.7%	15.1%	NA
Cobalt	29	NA	5.0	5.1	4.0	1.49E-01	2.59E+00	2.74E+00	6.79E-02	NA	2.80E+00	4E-02	6E-01	2E-02	NA	7E-01	5.3%	92.3%	2.4%	NA
Copper	201	NA	22	8.2	12	6.55E-01	4.15E+00	4.80E+00	4.70E-01	NA	5.27E+00	5E-02	3E-01	4E-02	NA	4E-01	12.4%	78.7%	8.9%	NA
Lead	199	NA	10	9.0	6.4	3.00E-01	4.55E+00	4.85E+00	4.66E-01	NA	5.32E+00	5E-02	7E-01	7E-02	NA	8E-01	5.6%	85.6%	8.8%	NA
X Selenium	3.8	NA	0.25	0.45	0.16	7.46E-03	2.26E-01	2.33E-01	8.86E-03	NA	2.42E-01	5E-02	1E+00	6E-02	NA	2E+00	3.1%	93.3%	3.7%	NA
X Vanadium	76	NA	1.0	1.7	0.16	2.98E-02	8.37E-01	8.67E-01	1.79E-01	NA	1.05E+00	2E-01	5E+00	1E+00	NA	7E+00	2.9%	80.0%	17.1%	NA
X Zinc	3200	NA	156	463	129	4.65E+00	2.33E+02	2.38E+02	7.50E+00	NA	2.45E+02	4E-02	2E+00	6E-02	NA	2E+00	1.9%	95.0%	3.1%	NA

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

1 Plant tissue concentration was not measured at this station. Concentration is estimated from concentration in the sediment multiplied by an uptake factor (UF).

TABLE 31. UCL EXPOSURE CALCULATIONS FOR MUSKRAT - STATION BE-3

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Animal (mg/Kg)	C_Plant (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	BE-3	No SW	Sitewide	Sed*UF ¹	NOAEL															
Inorganics																				
X Aluminum	10100	NA	237	121	42	7.08E+00	6.07E+01	6.78E+01	2.37E+01	NA	9.15E+01	2E-01	1E+00	6E-01	NA	2E+00	7.7%	66.4%	25.9%	NA
X Antimony	1.5	NA	0.25	0.19	0.054	7.46E-03	9.39E-02	1.01E-01	3.51E-03	NA	1.05E-01	1E-01	2E+00	6E-02	NA	2E+00	7.1%	89.5%	3.4%	NA
X Arsenic	88	NA	19	4.8	1.6	5.72E-01	2.42E+00	2.99E+00	2.07E-01	NA	3.20E+00	4E-01	2E+00	1E-01	NA	2E+00	17.9%	75.7%	6.5%	NA
Cadmium	3.1	NA	0.46	0.21	0.78	1.38E-02	1.04E-01	1.18E-01	7.26E-03	NA	1.26E-01	2E-02	1E-01	9E-03	NA	2E-01	11.0%	83.2%	5.8%	NA
Chromium	46	NA	16	0.60	7.2	4.78E-01	3.03E-01	7.81E-01	1.07E-01	NA	8.88E-01	7E-02	4E-02	1E-02	NA	1E-01	53.8%	34.1%	12.1%	NA
Cobalt	17	NA	5.0	3.1	4.0	1.49E-01	1.55E+00	1.70E+00	4.08E-02	NA	1.74E+00	4E-02	4E-01	1E-02	NA	4E-01	8.6%	89.1%	2.3%	NA
Copper	84	NA	22	3.5	12	6.55E-01	1.74E+00	2.40E+00	1.98E-01	NA	2.60E+00	5E-02	1E-01	2E-02	NA	2E-01	25.2%	67.2%	7.6%	NA
Lead	162	NA	10	7.4	6.4	3.00E-01	3.71E+00	4.01E+00	3.80E-01	NA	4.39E+00	5E-02	6E-01	6E-02	NA	7E-01	6.8%	84.5%	8.7%	NA
X Selenium	1.8	NA	0.25	0.21	0.16	7.46E-03	1.08E-01	1.15E-01	4.22E-03	NA	1.19E-01	5E-02	7E-01	3E-02	NA	7E-01	6.3%	90.2%	3.5%	NA
X Vanadium	41	NA	1.0	0.88	0.16	2.98E-02	4.44E-01	4.74E-01	9.51E-02	NA	5.69E-01	2E-01	3E+00	6E-01	NA	4E+00	5.2%	78.0%	16.7%	NA
Zinc	609	NA	156	88	129	4.65E+00	4.43E+01	4.90E+01	1.43E+00	NA	5.04E+01	4E-02	3E-01	1E-02	NA	4E-01	9.2%	87.9%	2.8%	NA

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

1 Plant tissue concentration was not measured at this station. Concentration is estimated from concentration in the sediment multiplied by an uptake factor (UF).

TABLE 32. UCL EXPOSURE CALCULATIONS FOR MUSKRAT - STATION HB01

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	HB01	HB01	MC-06	MC-06	NOAEL															
Inorganics																				
Aluminum	7873	82	300	64	42	8.95E+00	3.22E+01	4.12E+01	1.84E+01	8.29E-03	5.96E+01	2E-01	8E-01	4E-01	2E-04	1E+00	15.0%	54.0%	30.9%	0.0%
X Antimony	11	5.8	0.25	0.25	0.054	7.46E-03	1.26E-01	1.33E-01	2.51E-02	5.88E-04	1.59E-01	1E-01	2E+00	5E-01	1E-02	3E+00	4.7%	79.2%	15.8%	0.4%
X Arsenic	308	34	26	43	1.6	7.76E-01	2.16E+01	2.24E+01	7.21E-01	3.46E-03	2.31E+01	5E-01	1E+01	4E-01	2E-03	1E+01	3.4%	93.5%	3.1%	0.0%
Cadmium	17	1.0	0.57	0.25	0.78	1.70E-02	1.26E-01	1.43E-01	3.95E-02	1.03E-04	1.82E-01	2E-02	2E-01	5E-02	1E-04	2E-01	9.3%	69.0%	21.6%	0.1%
Chromium	456	3.6	16	3.1	7.2	4.78E-01	1.56E+00	2.04E+00	1.07E+00	3.62E-04	3.11E+00	7E-02	2E-01	1E-01	5E-05	4E-01	15.4%	50.2%	34.4%	0.0%
Cobalt	25	2.1	5.0	5.0	4.0	1.49E-01	2.52E+00	2.67E+00	5.79E-02	2.10E-04	2.72E+00	4E-02	6E-01	1E-02	5E-05	7E-01	5.5%	92.4%	2.1%	0.0%
Copper	1141	9.2	22	17	12	6.57E-01	8.74E+00	9.40E+00	2.67E+00	9.26E-04	1.21E+01	5E-02	7E-01	2E-01	8E-05	1E+00	5.4%	72.4%	22.1%	0.0%
Lead	557	2.4	13	5.2	6.4	3.88E-01	2.63E+00	3.02E+00	1.31E+00	2.40E-04	4.32E+00	6E-02	4E-01	2E-01	4E-05	7E-01	9.0%	60.8%	30.2%	0.0%
Selenium	4.3	1.9	0.25	0.25	0.16	7.46E-03	1.26E-01	1.33E-01	1.00E-02	1.91E-04	1.43E-01	5E-02	8E-01	6E-02	1E-03	9E-01	5.2%	87.7%	7.0%	0.1%
Vanadium	26	1.7	1.0	0.25	0.16	2.98E-02	1.26E-01	1.56E-01	6.12E-02	1.74E-04	2.17E-01	2E-01	8E-01	4E-01	1E-03	1E+00	13.8%	58.0%	28.2%	0.1%
Zinc	5745	243	160	71	129	4.78E+00	3.59E+01	4.06E+01	1.35E+01	2.46E-02	5.41E+01	4E-02	3E-01	1E-01	2E-04	4E-01	8.8%	66.3%	24.9%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 33. UCL EXPOSURE CALCULATIONS FOR MUSKRAT - STATION HB02-1

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	HB02-1	HB02-1	MC-08	MC-08	NOAEL															
Inorganics																				
X Aluminum	12886	126	21	663	42	6.27E-01	3.34E+02	3.34E+02	3.02E+01	1.27E-02	3.65E+02	1E-02	8E+00	7E-01	3E-04	9E+00	0.2%	91.5%	8.3%	0.0%
X Antimony	6.9	2.7	0.25	0.41	0.054	7.46E-03	2.08E-01	2.15E-01	1.62E-02	2.71E-04	2.32E-01	1E-01	4E+00	3E-01	5E-03	4E+00	3.2%	89.7%	7.0%	0.1%
X Arsenic	847	30	5.8	77	1.6	1.73E-01	3.89E+01	3.91E+01	1.98E+00	3.07E-03	4.11E+01	1E-01	2E+01	1E+00	2E-03	3E+01	0.4%	94.7%	4.8%	0.0%
Cadmium	31	0.28	0.25	2.0	0.78	7.46E-03	1.02E+00	1.02E+00	7.34E-02	2.78E-05	1.10E+00	1E-02	1E+00	9E-02	4E-05	1E+00	0.7%	92.6%	6.7%	0.0%
X Chromium	452	5.6	1.4	29	7.2	4.18E-02	1.46E+01	1.46E+01	1.06E+00	5.69E-04	1.57E+01	6E-03	2E+00	1E-01	8E-05	2E+00	0.3%	93.0%	6.8%	0.0%
X Cobalt	79	1.3	5.0	22	4.0	1.49E-01	1.13E+01	1.14E+01	1.86E-01	1.35E-04	1.16E+01	4E-02	3E+00	5E-02	3E-05	3E+00	1.3%	97.1%	1.6%	0.0%
Copper	722	8.8	5.0	32	12	1.49E-01	1.59E+01	1.61E+01	1.69E+00	8.89E-04	1.77E+01	1E-02	1E+00	1E-01	7E-05	1E+00	0.8%	89.6%	9.5%	0.0%
X Lead	325	3.5	0.50	33	6.4	1.49E-02	1.66E+01	1.66E+01	7.62E-01	3.53E-04	1.74E+01	2E-03	3E+00	1E-01	5E-05	3E+00	0.1%	95.5%	4.4%	0.0%
X Selenium	3.0	1.6	0.25	0.33	0.16	7.46E-03	1.67E-01	1.74E-01	6.95E-03	1.58E-04	1.81E-01	5E-02	1E+00	4E-02	1E-03	1E+00	4.1%	92.0%	3.8%	0.1%
X Vanadium	50	2.6	0.25	2.2	0.16	7.46E-03	1.11E+00	1.12E+00	1.18E-01	2.60E-04	1.24E+00	5E-02	7E+00	8E-01	2E-03	8E+00	0.6%	89.9%	9.5%	0.0%
X Zinc	7161	163	35	2248	129	1.04E+00	1.13E+03	1.13E+03	1.68E+01	1.64E-02	1.15E+03	8E-03	9E+00	1E-01	1E-04	9E+00	0.1%	98.4%	1.5%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 34. UCL EXPOSURE CALCULATIONS FOR MUSKRAT - STATION HB03-1

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Animal (mg/Kg)	C_Plant (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	HB03-1	HB03-1	HBHA wet	HBHA wet	NOAEL															
Inorganics																				
X Aluminum	10455	126	32	256	42	9.55E-01	1.29E+02	1.30E+02	2.45E+01	1.27E-02	1.54E+02	2E-02	3E+00	6E-01	3E-04	4E+00	0.6%	83.5%	15.9%	0.0%
X Antimony	2.3	2.7	0.25	0.33	0.054	7.46E-03	1.66E-01	1.73E-01	5.39E-03	2.71E-04	1.79E-01	1E-01	3E+00	1E-01	5E-03	3E+00	4.2%	92.7%	3.0%	0.2%
X Arsenic	529	30	8.3	40	1.6	2.48E-01	2.00E+01	2.03E+01	1.24E+00	3.07E-03	2.15E+01	2E-01	1E+01	8E-01	2E-03	1E+01	1.2%	93.1%	5.8%	0.0%
Cadmium	12	0.28	0.25	1.2	0.78	7.46E-03	5.88E-01	5.95E-01	2.85E-02	2.78E-05	6.24E-01	1E-02	8E-01	4E-02	4E-05	8E-01	1.2%	94.2%	4.6%	0.0%
Chromium	382	5.6	2.2	19	7.2	6.57E-02	9.78E+00	9.85E+00	8.95E-01	5.69E-04	1.07E+01	9E-03	1E+00	1E-01	8E-05	1E+00	0.6%	91.1%	8.3%	0.0%
Cobalt	47	1.3	5.0	9.7	4.0	1.49E-01	4.87E+00	5.02E+00	1.09E-01	1.35E-04	5.13E+00	4E-02	1E+00	3E-02	3E-05	1E+00	2.9%	95.0%	2.1%	0.0%
Copper	386	8.8	20	19	12	5.97E-01	9.67E+00	1.03E+01	9.03E-01	8.89E-04	1.12E+01	5E-02	8E-01	7E-02	7E-05	9E-01	5.3%	86.6%	8.1%	0.0%
X Lead	115	3.5	1.1	21	6.4	3.28E-02	1.07E+01	1.07E+01	2.69E-01	3.53E-04	1.10E+01	5E-03	2E+00	4E-02	5E-05	2E+00	0.3%	97.2%	2.5%	0.0%
Selenium	2.7	1.6	0.25	0.29	0.16	7.46E-03	1.46E-01	1.53E-01	6.40E-03	1.58E-04	1.60E-01	5E-02	9E-01	4E-02	1E-03	1E+00	4.7%	91.2%	4.0%	0.1%
X Vanadium	27	2.6	0.25	1.3	0.16	7.46E-03	6.75E-01	6.83E-01	6.33E-02	2.60E-04	7.46E-01	5E-02	4E+00	4E-01	2E-03	5E+00	1.0%	90.5%	8.5%	0.0%
X Zinc	3329	163	35	1164	129	1.04E+00	5.86E+02	5.87E+02	7.80E+00	1.64E-02	5.94E+02	8E-03	5E+00	6E-02	1E-04	5E+00	0.2%	98.5%	1.3%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 35. UCL EXPOSURE CALCULATIONS FOR MUSKRAT - STATION HB03-2

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	HB03-2	HB03-2	MC-11	MC-11	NOAEL															
Inorganics																				
X Aluminum	12695	126	32	210	42	9.55E-01	1.06E+02	1.07E+02	2.97E+01	1.27E-02	1.36E+02	2E-02	3E+00	7E-01	3E-04	3E+00	0.7%	77.5%	21.8%	0.0%
X Antimony	3.6	2.7	0.25	0.25	0.054	7.46E-03	1.26E-01	1.33E-01	8.43E-03	2.71E-04	1.42E-01	1E-01	2E+00	2E-01	5E-03	3E+00	5.3%	88.6%	5.9%	0.2%
X Arsenic	783	30	4.3	53	1.6	1.28E-01	2.67E+01	2.68E+01	1.83E+00	3.07E-03	2.86E+01	8E-02	2E+01	1E+00	2E-03	2E+01	0.4%	93.1%	6.4%	0.0%
Cadmium	21	0.28	0.25	0.25	0.78	7.46E-03	1.26E-01	1.33E-01	4.88E-02	2.78E-05	1.82E-01	1E-02	2E-01	6E-02	4E-05	2E-01	4.1%	69.1%	26.8%	0.0%
Chromium	513	5.6	2.2	8.1	7.2	6.57E-02	4.08E+00	4.14E+00	1.20E+00	5.69E-04	5.34E+00	9E-03	6E-01	2E-01	8E-05	7E-01	1.2%	76.3%	22.5%	0.0%
Cobalt	40	1.3	5.0	5.0	4.0	1.49E-01	2.52E+00	2.67E+00	9.41E-02	1.35E-04	2.76E+00	4E-02	6E-01	2E-02	3E-05	7E-01	5.4%	91.2%	3.4%	0.0%
Copper	719	8.8	5.0	10	12	1.49E-01	5.17E+00	5.32E+00	1.68E+00	8.89E-04	7.01E+00	1E-02	4E-01	1E-01	7E-05	6E-01	2.1%	73.8%	24.0%	0.0%
Lead	274	3.5	1.1	5.5	6.4	3.28E-02	2.77E+00	2.80E+00	6.41E-01	3.53E-04	3.44E+00	5E-03	4E-01	1E-01	5E-05	5E-01	1.0%	80.4%	18.6%	0.0%
X Selenium	4.3	1.6	0.25	0.25	0.16	7.46E-03	1.26E-01	1.33E-01	9.98E-03	1.58E-04	1.43E-01	5E-02	8E-01	6E-02	1E-03	9E-01	5.2%	87.7%	7.0%	0.1%
X Vanadium	42	2.6	0.25	0.93	0.16	7.46E-03	4.68E-01	4.75E-01	9.87E-02	2.60E-04	5.74E-01	5E-02	3E+00	6E-01	2E-03	4E+00	1.3%	81.5%	17.2%	0.0%
Zinc	5135	163	26	99	129	7.76E-01	5.00E+01	5.08E+01	1.20E+01	1.64E-02	6.28E+01	6E-03	4E-01	9E-02	1E-04	5E-01	1.2%	79.6%	19.1%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 36. UCL EXPOSURE CALCULATIONS FOR MUSKRAT - STATION MC-09

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	MC-09	MC-09	MC-09	MC-09	NOAEL															
Inorganics																				
X Aluminum	17500	200	18	197	42	5.37E-01	9.90E+01	9.96E+01	4.10E+01	2.02E-02	1.41E+02	1E-02	2E+00	1E+00	5E-04	3E+00	0.4%	70.4%	29.2%	0.0%
X Antimony	7.3	9.2	0.25	0.25	0.054	7.46E-03	1.26E-01	1.33E-01	1.71E-02	9.24E-04	1.51E-01	1E-01	2E+00	3E-01	2E-02	3E+00	4.9%	83.2%	11.3%	0.6%
X Arsenic	802	50	8.3	21	1.6	2.48E-01	1.08E+01	1.10E+01	1.88E+00	5.06E-03	1.29E+01	2E-01	7E+00	1E+00	3E-03	8E+00	1.9%	83.5%	14.5%	0.0%
Cadmium	30	0.39	0.25	0.45	0.78	7.46E-03	2.26E-01	2.33E-01	6.96E-02	3.94E-05	3.03E-01	1E-02	3E-01	9E-02	5E-05	4E-01	2.5%	74.6%	23.0%	0.0%
Chromium	641	10	1.7	7.8	7.2	5.07E-02	3.93E+00	3.98E+00	1.50E+00	1.01E-03	5.49E+00	7E-03	5E-01	2E-01	1E-04	8E-01	0.9%	71.7%	27.4%	0.0%
Cobalt	75	1.5	5.0	5.0	4.0	1.49E-01	2.52E+00	2.67E+00	1.76E-01	1.52E-04	2.84E+00	4E-02	6E-01	4E-02	4E-05	7E-01	5.3%	88.5%	6.2%	0.0%
Copper	1110	12	20	8.2	12	5.97E-01	4.11E+00	4.71E+00	2.60E+00	1.20E-03	7.31E+00	5E-02	3E-01	2E-01	1E-04	6E-01	8.2%	56.2%	35.6%	0.0%
Lead	397	4.6	0.50	4.4	6.4	1.49E-02	2.23E+00	2.25E+00	9.30E-01	4.65E-04	3.18E+00	2E-03	3E-01	1E-01	7E-05	5E-01	0.5%	70.3%	29.3%	0.0%
X Selenium	5.5	0.55	0.25	0.25	0.16	7.46E-03	1.26E-01	1.33E-01	1.29E-02	5.56E-05	1.46E-01	5E-02	8E-01	8E-02	3E-04	9E-01	5.1%	86.0%	8.8%	0.0%
X Vanadium	57	5.9	0.25	0.93	0.16	7.46E-03	4.70E-01	4.77E-01	1.34E-01	5.96E-04	6.12E-01	5E-02	3E+00	9E-01	4E-03	4E+00	1.2%	76.8%	21.9%	0.1%
Zinc	7420	192	27	165	129	8.06E-01	8.33E+01	8.41E+01	1.74E+01	1.94E-02	1.01E+02	6E-03	6E-01	1E-01	2E-04	8E-01	0.8%	82.1%	17.1%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 37. UCL EXPOSURE CALCULATIONS FOR MUSKRAT - STATION MC-13

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	MC-13	MC-13	MC-13	Sitewide	NOAEL															
Inorganics																				
X Aluminum	18100	62	200	201	42	5.97E+00	1.01E+02	1.07E+02	4.24E+01	6.28E-03	1.50E+02	1E-01	2E+00	1E+00	2E-04	4E+00	4.0%	67.7%	28.3%	0.0%
X Antimony	2.8	9.2	0.25	0.32	0.054	7.46E-03	1.60E-01	1.67E-01	6.56E-03	9.24E-04	1.75E-01	1E-01	3E+00	1E-01	2E-02	3E+00	4.3%	91.4%	3.8%	0.5%
X Arsenic	339	27	9.8	37	1.6	2.93E-01	1.85E+01	1.88E+01	7.94E-01	2.70E-03	1.96E+01	2E-01	1E+01	5E-01	2E-03	1E+01	1.5%	94.4%	4.0%	0.0%
Cadmium	5.3	0.39	0.25	1.0	0.78	7.46E-03	5.23E-01	5.30E-01	1.24E-02	3.94E-05	5.43E-01	1E-02	7E-01	2E-02	5E-05	7E-01	1.4%	96.3%	2.3%	0.0%
X Chromium	956	11	16	17	7.2	4.78E-01	8.55E+00	9.03E+00	2.24E+00	1.07E-03	1.13E+01	7E-02	1E+00	3E-01	1E-04	2E+00	4.2%	75.9%	19.9%	0.0%
Cobalt	21	1.5	5.0	9.0	4.0	1.49E-01	4.53E+00	4.68E+00	5.01E-02	1.52E-04	4.73E+00	4E-02	1E+00	1E-02	4E-05	1E+00	3.2%	95.8%	1.1%	0.0%
Copper	486	2.8	18	18	12	5.37E-01	9.08E+00	9.62E+00	1.14E+00	2.83E-04	1.08E+01	4E-02	7E-01	9E-02	2E-05	9E-01	5.0%	84.4%	10.6%	0.0%
X Lead	647	1.4	8.1	19	6.4	2.42E-01	9.35E+00	9.60E+00	1.52E+00	1.41E-04	1.11E+01	4E-02	1E+00	2E-01	2E-05	2E+00	2.2%	84.2%	13.6%	0.0%
X Selenium	2.1	0.55	0.25	0.28	0.16	7.46E-03	1.43E-01	1.50E-01	4.92E-03	5.56E-05	1.55E-01	5E-02	9E-01	3E-02	3E-04	1E+00	4.8%	92.0%	3.2%	0.0%
X Vanadium	65	5.4	0.97	1.2	0.16	2.90E-02	5.99E-01	6.28E-01	1.51E-01	5.45E-04	7.80E-01	2E-01	4E+00	1E+00	3E-03	5E+00	3.7%	76.8%	19.4%	0.1%
X Zinc	1200	39	46	1006	129	1.37E+00	5.06E+02	5.07E+02	2.81E+00	3.89E-03	5.10E+02	1E-02	4E+00	2E-02	3E-05	4E+00	0.3%	99.2%	0.6%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 38. UCL EXPOSURE CALCULATIONS FOR MUSKRAT - REFERENCE

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	Ref	Ref	Ref	Ref	NOAEL															
Inorganics																				
X Aluminum	8981	1609	125	224	42	3.72E+00	1.13E+02	1.16E+02	2.10E+01	1.63E-01	1.38E+02	9E-02	3E+00	5E-01	4E-03	3E+00	2.7%	81.9%	15.3%	0.1%
X Antimony	0.96	9.2	0.25	0.25	0.054	7.46E-03	1.26E-01	1.33E-01	2.25E-03	9.24E-04	1.36E-01	1E-01	2E+00	4E-02	2E-02	3E+00	5.5%	92.2%	1.6%	0.7%
Arsenic	23	7.0	0.87	3.6	1.6	2.59E-02	1.80E+00	1.82E+00	5.35E-02	7.02E-04	1.88E+00	2E-02	1E+00	3E-02	4E-04	1E+00	1.4%	95.7%	2.8%	0.0%
Cadmium	1.7	0.39	0.25	0.25	0.78	7.46E-03	1.26E-01	1.33E-01	4.03E-03	3.94E-05	1.37E-01	1E-02	2E-01	5E-03	5E-05	2E-01	5.4%	91.6%	2.9%	0.0%
Chromium	300	0.88	4.9	3.1	7.2	1.46E-01	1.57E+00	1.71E+00	7.04E-01	8.89E-05	2.42E+00	2E-02	2E-01	1E-01	1E-05	3E-01	6.0%	64.8%	29.1%	0.0%
Cobalt	9.0	7.1	5.0	5.0	4.0	1.49E-01	2.52E+00	2.67E+00	2.10E-02	7.17E-04	2.69E+00	4E-02	6E-01	5E-03	2E-04	7E-01	5.6%	93.6%	0.8%	0.0%
Copper	71	6.8	5.0	5.0	12	1.49E-01	2.52E+00	2.67E+00	1.67E-01	6.90E-04	2.83E+00	1E-02	2E-01	1E-02	6E-05	2E-01	5.3%	88.8%	5.9%	0.0%
Lead	290	34	5.8	15	6.4	1.72E-01	7.77E+00	7.95E+00	6.80E-01	3.46E-03	8.63E+00	3E-02	1E+00	1E-01	5E-04	1E+00	2.0%	90.1%	7.9%	0.0%
X Selenium	1.6	1.1	0.25	0.25	0.16	7.46E-03	1.26E-01	1.33E-01	3.70E-03	1.11E-04	1.37E-01	5E-02	8E-01	2E-02	7E-04	9E-01	5.4%	91.8%	2.7%	0.1%
X Vanadium	44	5.4	0.78	2.1	0.16	2.34E-02	1.07E+00	1.09E+00	1.03E-01	5.49E-04	1.20E+00	1E-01	7E+00	7E-01	4E-03	8E+00	2.0%	89.4%	8.6%	0.0%
Zinc	212	38	17	16	129	5.07E-01	7.93E+00	8.44E+00	4.98E-01	3.86E-03	8.94E+00	4E-03	6E-02	4E-03	3E-05	7E-02	5.7%	88.7%	5.6%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 39. UCL EXPOSURE CALCULATIONS FOR OTTER - SITEWIDE

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Invertebrate} (mg/Kg)	C _{fish} (mg/Kg)	TRV mg/Kg day	DOSE invertebrate (mg/Kg BW day)	DOSE fish (mg/Kg BW day)	DOSE food (i+f) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ invertebrate	HQ fish	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ invertebrate	% HQ fish	% HQ soil/ sediment	% HQ water	
Inorganics Arsenic	Datasource: Sitewide	Sitewide	Sitewide	Sitewide	NOAEL																
		667	114	16	0.89	0.92	3.29E-01	7.13E-02	4.00E-01	3.34E-01	9.15E-03	7.43E-01	4E-01	8E-02	4E-01	1E-02	8E-01	44.3%	9.6%	44.9%	1.2%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 40. UCL EXPOSURE CALCULATIONS FOR OTTER - REFERENCE

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Invertebrate} (mg/Kg)	C _{fish} (mg/Kg)	TRV mg/Kg day	DOSE invertebrate (mg/Kg BW day)	DOSE fish (mg/Kg BW day)	DOSE food (i+f) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ invertebrate	HQ fish	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ invertebrate	% HQ fish	% HQ soil/ sediment	% HQ water		
Inorganics Arsenic	Datasource: Reference	20	2.9	0.67	0.17	NOAEL	0.92	1.34E-02	1.34E-02	2.69E-02	9.80E-03	2.32E-04	3.69E-02	1E-02	1E-02	1E-02	3E-04	4E-02	36.4%	36.4%	26.5%	0.6%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 41. UCL EXPOSURE CALCULATIONS FOR HERON - SITEWIDE

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Invertebrate} (mg/Kg)	C _{Fish} (mg/Kg)	TRV mg/Kg day	DOSE invertebrate (mg/Kg BW day)	DOSE fish (mg/Kg BW day)	DOSE prey (i+f) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ invertebrate	HQ fish	HQ sediment	HQ water	TOTAL HQ	% HQ invertebrate	% HQ fish	% HQ soil/ sediment	% HQ water
Datasource:	Sitewide	Sitewide	Sitewide	Sitewide	NOAEL															
Inorganics																				
Chromium	415	4.5	16	0.50	1.0	8.36E-01	2.14E-02	8.57E-01	9.41E-02	2.18E-04	9.52E-01	8E-01	2E-02	9E-02	2E-04	1E+00	87.8%	2.2%	9.9%	0.0%
Lead	308	2.7	10	0.50	1.1	5.25E-01	2.14E-02	5.46E-01	6.99E-02	1.35E-04	6.16E-01	5E-01	2E-02	6E-02	1E-04	5E-01	85.2%	3.5%	11.3%	0.0%
Mercury	1.8	0.054	0.050	0.050	0.0064	2.61E-03	2.14E-03	4.75E-03	4.11E-04	2.65E-06	5.16E-03	4E-01	3E-01	6E-02	4E-04	8E-01	50.6%	41.4%	8.0%	0.1%
Zinc	4961	189	156	26	15	8.14E+00	1.10E+00	9.25E+00	1.13E+00	9.28E-03	1.04E+01	6E-01	8E-02	8E-02	6E-04	7E-01	78.4%	10.6%	10.8%	0.1%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 42. UCL EXPOSURE CALCULATIONS FOR HERON - REFERENCE

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Invertebrate} (mg/Kg)	C _{Fish} (mg/Kg)	TRV mg/Kg day	DOSE invertebrate (mg/Kg BW day)	DOSE fish (mg/Kg BW day)	DOSE prey (i+f) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ invertebrate	HQ fish	HQ sediment	HQ water	TOTAL HQ	% HQ invertebrate	% HQ fish	% HQ soil/ sediment	% HQ water
Datasource:	Reference	Reference	Reference	Reference	NOAEL															
Inorganics																				
Chromium	300	0.88	4.9	0.50	1.0	2.56E-01	2.14E-02	2.77E-01	6.82E-02	4.31E-05	3.46E-01	3E-01	2E-02	7E-02	4E-05	3E-01	74.1%	6.2%	19.7%	0.0%
Lead	290	34	5.8	0.50	1.1	3.02E-01	2.14E-02	3.23E-01	6.59E-02	1.68E-03	3.91E-01	3E-01	2E-02	6E-02	1E-03	3E-01	77.2%	5.5%	16.9%	0.4%
Mercury	0.34	0.095	0.050	0.10	0.0064	2.61E-03	4.32E-03	6.93E-03	7.69E-05	4.64E-06	7.01E-03	4E-01	7E-01	1E-02	7E-04	1E+00	37.3%	61.6%	1.1%	0.1%
Zinc	212	38	17	27	15	8.88E-01	1.17E+00	2.06E+00	4.82E-02	1.86E-03	2.11E+00	6E-02	8E-02	3E-03	1E-04	1E-01	42.2%	55.4%	2.3%	0.1%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 43. UCL EXPOSURE CALCULATIONS FOR MALLARD - HBHA WETLAND

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water	
Datasource:	HBHA Wetland	HBHA Wetland	HBHA Wetland	HBHA Wetland	NOAEL															
Inorganics																				
Aluminum	11650	126	32	256	110	2.61E+00	1.91E+01	2.17E+01	1.10E+01	3.65E-03	3.26E+01	2E-02	2E-01	1E-01	3E-05	3E-01	8.0%	58.4%	33.6%	0.0%
Antimony	5.9	2.7	0.25	0.32	0.13	2.04E-02	2.42E-02	4.46E-02	5.53E-03	7.78E-05	5.02E-02	2E-01	2E-01	4E-02	6E-04	4E-01	40.6%	48.2%	11.0%	0.2%
Arsenic	666	30	8.3	40	5.1	6.76E-01	2.97E+00	3.64E+00	6.26E-01	8.83E-04	4.27E+00	1E-01	6E-01	1E-01	2E-04	8E-01	15.8%	69.5%	14.7%	0.0%
X Chromium	404	5.6	2.2	19	1.0	1.79E-01	1.45E+00	1.63E+00	3.80E-01	1.63E-04	2.01E+00	2E-01	1E+00	4E-01	2E-04	2E+00	8.9%	72.2%	18.9%	0.0%
X Lead	254	3.5	1.1	21	1.1	8.96E-02	1.58E+00	1.67E+00	2.39E-01	1.01E-04	1.91E+00	8E-02	1E+00	2E-01	9E-05	2E+00	4.7%	82.8%	12.5%	0.0%
Mercury	1.9	0.060	0.050	0.050	0.0064	4.07E-03	3.73E-03	7.80E-03	1.77E-03	1.75E-06	9.57E-03	6E-01	6E-01	3E-01	3E-04	1E+00	42.5%	39.0%	18.5%	0.0%
X Zinc	5345	163	35	1164	15	2.85E+00	8.68E+01	8.96E+01	5.03E+00	4.72E-03	9.47E+01	2E-01	6E+00	3E-01	3E-04	7E+00	3.0%	91.7%	5.3%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 44. UCL EXPOSURE CALCULATIONS FOR MALLARD - HBHA POND

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	Total water (mg/Kg BW day)	Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	HBHA Pond	HBHA Pond	HBHA Pond	HBHA Pond	NOAEL															
Inorganics																				
Aluminum	7873	82	300	64	110	2.44E+01	4.77E+00	2.92E+01	7.40E+00	2.38E-03	3.66E+01	2E-01	4E-02	7E-02	2E-05	3E-01	66.7%	13.0%	20.2%	0.0%
Antimony	11	8.7	0.25	0.25	0.13	2.04E-02	1.86E-02	3.90E-02	1.01E-02	2.51E-04	4.93E-02	2E-01	1E-01	8E-02	2E-03	4E-01	41.3%	37.8%	20.4%	0.5%
Arsenic	308	34	26	43	5.1	2.12E+00	3.21E+00	5.32E+00	2.89E-01	9.95E-04	5.61E+00	4E-01	6E-01	6E-02	2E-04	1E+00	37.7%	57.1%	5.2%	0.0%
X Chromium	456	3.6	16	3.1	1.0	1.30E+00	2.31E-01	1.53E+00	4.29E-01	1.04E-04	1.96E+00	1E+00	2E-01	4E-01	1E-04	2E+00	66.4%	11.8%	21.9%	0.0%
X Lead	557	2.4	13	5.2	1.1	1.06E+00	3.90E-01	1.45E+00	5.24E-01	6.88E-05	1.97E+00	9E-01	3E-01	5E-01	6E-05	2E+00	53.7%	19.7%	26.6%	0.0%
Mercury	1.7	0.051	0.050	0.050	0.0064	4.07E-03	3.73E-03	7.80E-03	1.64E-03	1.47E-06	9.44E-03	6E-01	6E-01	3E-01	2E-04	1E+00	43.1%	39.5%	17.4%	0.0%
X Zinc	5745	243	160	71	15	1.30E+01	5.32E+00	1.83E+01	5.40E+00	7.06E-03	2.38E+01	9E-01	4E-01	4E-01	5E-04	2E+00	54.8%	22.4%	22.7%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 45. UCL EXPOSURE CALCULATIONS FOR MALLARD - SITEWIDE

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	Total water (mg/Kg BW day)	Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	Sitewide	Sitewide	Sitewide	Sitewide	NOAEL															
Inorganics																				
Aluminum	10443	90	237	201	110	1.93E+01	1.50E+01	3.43E+01	9.82E+00	2.60E-03	4.42E+01	2E-01	1E-01	9E-02	2E-05	4E-01	43.7%	34.0%	22.2%	0.0%
Antimony	6.5	5.2	0.25	0.31	0.13	2.04E-02	2.34E-02	4.38E-02	6.10E-03	1.51E-04	5.00E-02	2E-01	2E-01	5E-02	1E-03	4E-01	40.7%	46.8%	12.2%	0.3%
Arsenic	497	28	19	37	5.1	1.56E+00	2.75E+00	4.31E+00	4.67E-01	8.05E-04	4.78E+00	3E-01	5E-01	9E-02	2E-04	9E-01	32.7%	57.5%	9.8%	0.0%
X Chromium	362	4.0	16	17	1.0	1.30E+00	1.27E+00	2.57E+00	3.41E-01	1.17E-04	2.91E+00	1E+00	1E+00	3E-01	1E-04	3E+00	44.8%	43.5%	11.7%	0.0%
X Lead	270	2.5	10	19	1.1	8.18E-01	1.39E+00	2.20E+00	2.54E-01	7.17E-05	2.46E+00	7E-01	1E+00	2E-01	6E-05	2E+00	33.3%	56.4%	10.3%	0.0%
Mercury	1.6	0.054	0.050	0.050	0.0064	4.07E-03	3.73E-03	7.80E-03	1.51E-03	1.55E-06	9.31E-03	6E-01	6E-01	2E-01	2E-04	1E+00	43.7%	40.0%	16.2%	0.0%
X Zinc	3906	157	156	1006	15	1.27E+01	7.50E+01	8.77E+01	3.67E+00	4.55E-03	9.14E+01	9E-01	5E+00	3E-01	3E-04	6E+00	13.9%	82.1%	4.0%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 46. UCL EXPOSURE CALCULATIONS FOR MALLARD - REFERENCE

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Animal (mg/Kg)	C_Plant (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	Reference	Reference	Reference	Reference	NOAEL															
Inorganics																				
Aluminum	8981	1609	125	224	110	1.02E+01	1.67E+01	2.68E+00	8.45E+00	4.67E-02	3.53E+01	9E-02	2E-01	8E-02	4E-04	3E-01	28.7%	47.2%	23.9%	0.1%
Antimony	0.96	9.2	0.25	0.25	0.13	2.04E-02	1.86E-02	3.90E-02	9.01E-04	2.65E-04	4.02E-02	2E-01	1E-01	7E-03	2E-03	3E-01	50.7%	46.4%	2.2%	0.7%
Arsenic	23	7.0	0.87	3.6	5.1	7.07E-02	2.67E-01	3.37E-01	2.15E-02	2.02E-04	3.59E-01	1E-02	5E-02	4E-03	4E-05	7E-02	19.7%	74.3%	6.0%	0.1%
X Chromium	300	0.88	4.9	3.1	1.0	3.99E-01	2.32E-01	6.31E-01	2.83E-01	2.55E-05	9.14E-01	4E-01	2E-01	3E-01	3E-05	9E-01	43.7%	25.4%	30.9%	0.0%
Lead	290	34	5.8	15	1.1	4.70E-01	1.15E+00	1.62E+00	2.73E-01	9.93E-04	1.90E+00	4E-01	1E+00	2E-01	9E-04	2E+00	24.8%	60.8%	14.4%	0.1%
Mercury	0.34	0.095	0.050	0.050	0.0064	4.07E-03	3.73E-03	7.80E-03	3.18E-04	2.75E-06	8.12E-03	6E-01	6E-01	5E-02	4E-04	1E+00	50.1%	45.9%	3.9%	0.0%
Zinc	212	38	17	16	15	1.38E+00	1.18E+00	2.56E+00	2.00E-01	1.11E-03	2.76E+00	1E-01	8E-02	1E-02	8E-05	2E-01	50.1%	42.6%	7.2%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 47. UCL EXPOSURE CALCULATIONS FOR SHREW - STATION A6

Compound	C Sediment (mg/Kg)	C Water (ug/L)	C Prey (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water
Datasource:	A6	No SW	Earthworm A6	NOAEL											
Inorganics															
X Antimony	50	NA	4.0	0.15	7.52E-01	6.21E-01	NA	1.37E+00	5E+00	4E+00	NA	9E+00	54.8%	45.2%	NA
X Arsenic	599	NA	3.5	0.15	6.60E-01	7.39E+00	NA	8.05E+00	4E+00	5E+01	NA	5E+01	8.2%	91.8%	NA
Barium	255	NA	15	12	2.74E+00	3.15E+00	NA	5.89E+00	2E-01	3E-01	NA	5E-01	46.6%	53.4%	NA
Chromium	1171	NA	1.2	20	2.23E-01	1.45E+01	NA	1.47E+01	1E-02	7E-01	NA	7E-01	1.5%	98.5%	NA
Copper	426	NA	4.2	33	7.90E-01	5.26E+00	NA	6.05E+00	2E-02	2E-01	NA	2E-01	13.0%	87.0%	NA
X Lead	3561	NA	94	18	1.77E+01	4.40E+01	NA	6.16E+01	1E+00	3E+00	NA	4E+00	28.7%	71.3%	NA
Manganese	167	NA	2.3	193	4.36E-01	2.06E+00	NA	2.49E+00	2E-03	1E-02	NA	1E-02	17.5%	82.5%	NA
X Mercury	9.3	NA	0.10	0.070	1.96E-02	1.14E-01	NA	1.34E-01	3E-01	2E+00	NA	2E+00	14.6%	85.4%	NA
Selenium	7.6	NA	0.65	0.44	1.23E-01	9.39E-02	NA	2.17E-01	3E-01	2E-01	NA	5E-01	56.7%	43.3%	NA
X Thallium	20	NA	1.6	0.16	3.03E-01	2.51E-01	NA	5.54E-01	2E+00	2E+00	NA	3E+00	54.8%	45.2%	NA
Zinc	673	NA	115	352	2.16E+01	8.31E+00	NA	3.00E+01	6E-02	2E-02	NA	9E-02	72.3%	27.7%	NA

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

NA = Not applicable

TABLE 48. UCL EXPOSURE CALCULATIONS FOR SHREW - STATION BE-1

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Prey} (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water
Datasource:	BE-1	No SW	Earthworm BE-1		NOAEL										
Inorganics															
X Antimony	1.1	NA	0.087	0.15	1.64E-02	1.36E-02	NA	3.00E-02	1E-01	9E-02	NA	2E-01	54.8%	45.2%	NA
Arsenic	29	NA	0.42	0.15	7.84E-02	3.62E-01	NA	4.40E-01	5E-01	2E+00	NA	3E+00	17.8%	82.2%	NA
Barium	64	NA	3.6	12	6.84E-01	7.84E-01	NA	1.47E+00	6E-02	7E-02	NA	1E-01	46.6%	53.4%	NA
Chromium	35	NA	1.5	20	2.82E-01	4.31E-01	NA	7.13E-01	1E-02	2E-02	NA	4E-02	39.5%	60.5%	NA
Copper	89	NA	2.8	33	5.22E-01	1.10E+00	NA	1.62E+00	2E-02	3E-02	NA	5E-02	32.2%	67.8%	NA
Lead	143	NA	7.0	18	1.32E+00	1.77E+00	NA	3.09E+00	8E-02	1E-01	NA	2E-01	42.8%	57.2%	NA
Manganese	174	NA	2.4	193	4.49E-01	2.15E+00	NA	2.60E+00	2E-03	1E-02	NA	1E-02	17.3%	82.7%	NA
Mercury	0.19	NA	0.066	0.070	1.24E-02	2.35E-03	NA	1.48E-02	2E-01	3E-02	NA	2E-01	84.1%	15.9%	NA
Selenium	2.8	NA	0.31	0.44	5.90E-02	3.46E-02	NA	9.36E-02	1E-01	8E-02	NA	2E-01	63.1%	36.9%	NA
Thallium	1.1	NA	0.087	0.16	1.64E-02	1.36E-02	NA	3.00E-02	1E-01	8E-02	NA	2E-01	54.8%	45.2%	NA
Zinc	489	NA	103	352	1.95E+01	6.04E+00	NA	2.55E+01	6E-02	2E-02	NA	7E-02	76.4%	23.6%	NA

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

NA = Not applicable

TABLE 49. UCL EXPOSURE CALCULATIONS FOR SHREW - STATION BE-2

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Prey (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water
Datasource:	BE-2	No SW	Earthworm BE-2	NOAEL											
Inorganics															
X Antimony	3.1	NA	0.25	0.15	4.64E-02	3.83E-02	NA	8.46E-02	3E-01	3E-01	NA	6E-01	54.8%	45.2%	NA
Arsenic	354	NA	2.4	0.15	4.55E-01	4.37E+00	NA	4.83E+00	3E+00	3E+01	NA	3E+01	9.4%	90.6%	NA
Barium	79	NA	4.5	12	8.54E-01	9.79E-01	NA	1.83E+00	7E-02	8E-02	NA	2E-01	46.6%	53.4%	NA
Chromium	73	NA	1.4	20	2.68E-01	9.00E-01	NA	1.17E+00	1E-02	5E-02	NA	6E-02	23.0%	77.0%	NA
Copper	201	NA	3.4	33	6.47E-01	2.48E+00	NA	3.13E+00	2E-02	7E-02	NA	9E-02	20.7%	79.3%	NA
Lead	199	NA	9.1	18	1.72E+00	2.46E+00	NA	4.18E+00	1E-01	1E-01	NA	2E-01	41.2%	58.8%	NA
Manganese	629	NA	5.7	193	1.08E+00	7.77E+00	NA	8.84E+00	6E-03	4E-02	NA	5E-02	12.2%	87.8%	NA
Mercury	0.38	NA	0.071	0.070	1.35E-02	4.69E-03	NA	1.82E-02	2E-01	7E-02	NA	3E-01	74.1%	25.9%	NA
Selenium	3.8	NA	0.39	0.44	7.36E-02	4.67E-02	NA	1.20E-01	2E-01	1E-01	NA	3E-01	61.2%	38.8%	NA
Thallium	2.7	NA	0.21	0.16	4.04E-02	3.33E-02	NA	7.37E-02	2E-01	2E-01	NA	4E-01	54.8%	45.2%	NA
Zinc	3200	NA	192	352	3.61E+01	3.95E+01	NA	7.56E+01	1E-01	1E-01	NA	2E-01	47.7%	52.3%	NA

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

NA = Not applicable

TABLE 50. UCL EXPOSURE CALCULATIONS FOR SHREW - STATION BE-4

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Prey} (mg/Kg)		TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water	
Datasource:	BE-4	No SW	Earthworm BE-4		NOAEL												
Inorganics																	
X Antimony	2.0	NA	0.16		0.15	2.99E-02	2.47E-02	NA	5.46E-02	2E-01	2E-01	NA	4E-01	54.8%	45.2%	NA	
Arsenic	75	NA	0.81		0.15	1.52E-01	9.26E-01	NA	1.08E+00	1E+00	6E+00	NA	7E+00	14.1%	85.9%	NA	
Barium	40	NA	2.3		12	4.28E-01	4.92E-01	NA	9.20E-01	4E-02	4E-02	NA	8E-02	46.6%	53.4%	NA	
Chromium	182	NA	1.3		20	2.52E-01	2.25E+00	NA	2.50E+00	1E-02	1E-01	NA	1E-01	10.1%	89.9%	NA	
Copper	88	NA	2.8		33	5.20E-01	1.08E+00	NA	1.60E+00	2E-02	3E-02	NA	5E-02	32.4%	67.6%	NA	
Lead	290	NA	12		18	2.33E+00	3.58E+00	NA	5.92E+00	1E-01	2E-01	NA	3E-01	39.5%	60.5%	NA	
Manganese	688	NA	6.1		193	1.15E+00	8.50E+00	NA	9.64E+00	6E-03	4E-02	NA	5E-02	11.9%	88.1%	NA	
Mercury	0.19	NA	0.066		0.070	1.24E-02	2.28E-03	NA	1.47E-02	2E-01	3E-02	NA	2E-01	84.4%	15.6%	NA	
Selenium	5.3	NA	0.50		0.44	9.42E-02	6.55E-02	NA	1.60E-01	2E-01	1E-01	NA	4E-01	59.0%	41.0%	NA	
Thallium	1.7	NA	0.13		0.16	2.54E-02	2.10E-02	NA	4.64E-02	2E-01	1E-01	NA	3E-01	54.8%	45.2%	NA	
Zinc	483	NA	103		352	1.94E+01	5.97E+00	NA	2.54E+01	6E-02	2E-02	NA	7E-02	76.5%	23.5%	NA	

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

NA = Not applicable

TABLE 51. UCL EXPOSURE CALCULATIONS FOR SHREW - STATION HB02-2

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Prey} (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water
Inorganics	Datasource:	HB02-2	HB02-2	Earthworm HB02-2	NOAEL										
X Antimony	9.1	2.7	0.72	0.15	1.35E-01	1.12E-01	5.90E-04	2.48E-01	9E-01	8E-01	4E-03	2E+00	54.6%	45.1%	0.2%
X Arsenic	1035	30	5.2	0.15	9.71E-01	1.28E+01	6.70E-03	1.38E+01	6E+00	9E+01	4E-02	9E+01	7.1%	92.9%	0.0%
Barium	171	35	9.8	12	1.84E+00	2.11E+00	7.79E-03	3.96E+00	2E-01	2E-01	7E-04	3E-01	46.5%	53.3%	0.2%
Chromium	357	5.6	1.3	20	2.41E-01	4.41E+00	1.24E-03	4.65E+00	1E-02	2E-01	6E-05	2E-01	5.2%	94.8%	0.0%
Copper	495	8.8	4.4	33	8.21E-01	6.11E+00	1.94E-03	6.93E+00	2E-02	2E-01	6E-05	2E-01	11.8%	88.1%	0.0%
Lead	339	3.5	14	18	2.65E+00	4.18E+00	7.70E-04	6.83E+00	2E-01	2E-01	4E-05	4E-01	38.7%	61.2%	0.0%
Manganese	2526	548	15	193	2.78E+00	3.12E+01	1.21E-01	3.41E+01	1E-02	2E-01	6E-04	2E-01	8.2%	91.5%	0.4%
Mercury	0.97	0.060	0.080	0.070	1.50E-02	1.19E-02	1.33E-05	2.70E-02	2E-01	2E-01	2E-04	4E-01	55.7%	44.2%	0.0%
Selenium	8.4	1.6	0.70	0.44	1.32E-01	1.03E-01	3.44E-04	2.35E-01	3E-01	2E-01	8E-04	5E-01	55.9%	43.9%	0.1%
X Thallium	15	2.0	1.2	0.16	2.23E-01	1.85E-01	4.48E-04	4.08E-01	1E+00	1E+00	3E-03	2E+00	54.7%	45.2%	0.1%
Zinc	3516	163	198	352	3.72E+01	4.34E+01	3.58E-02	8.07E+01	1E-01	1E-01	1E-04	2E-01	46.1%	53.8%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

NA = Not applicable

TABLE 52. UCL EXPOSURE CALCULATIONS FOR SHREW - STATION HB03-3

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Prey (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water
Inorganics				Easrworm HB03-3	NOAEL										
X Antimony	7.0	2.7	0.56	0.15	1.05E-01	8.65E-02	5.90E-04	1.92E-01	7E-01	6E-01	4E-03	1E+00	54.6%	45.1%	0.3%
X Arsenic	338	30	2.3	0.15	4.41E-01	4.18E+00	6.70E-03	4.62E+00	3E+00	3E+01	4E-02	3E+01	9.5%	90.3%	0.1%
Barium	118	35	6.8	12	1.27E+00	1.46E+00	7.79E-03	2.74E+00	1E-01	1E-01	7E-04	2E-01	46.4%	53.3%	0.3%
Chromium	220	5.6	1.3	20	2.49E-01	2.72E+00	1.24E-03	2.97E+00	1E-02	1E-01	6E-05	2E-01	8.4%	91.6%	0.0%
Copper	361	8.8	4.0	33	7.56E-01	4.45E+00	1.94E-03	5.21E+00	2E-02	1E-01	6E-05	2E-01	14.5%	85.5%	0.0%
Lead	228	3.5	10	18	1.92E+00	2.82E+00	7.70E-04	4.75E+00	1E-01	2E-01	4E-05	3E-01	40.6%	59.4%	0.0%
Manganese	1910	548	12	193	2.30E+00	2.36E+01	1.21E-01	2.60E+01	1E-02	1E-01	6E-04	1E-01	8.8%	90.7%	0.5%
Mercury	1.2	0.060	0.082	0.070	1.54E-02	1.50E-02	1.33E-05	3.04E-02	2E-01	2E-01	2E-04	4E-01	50.7%	49.2%	0.0%
Selenium	4.4	1.6	0.44	0.44	8.20E-02	5.42E-02	3.44E-04	1.37E-01	2E-01	1E-01	8E-04	3E-01	60.1%	39.7%	0.3%
Thallium	4.1	2.0	0.33	0.16	6.18E-02	5.10E-02	4.48E-04	1.13E-01	4E-01	3E-01	3E-03	7E-01	54.5%	45.1%	0.4%
Zinc	1588	163	152	352	2.87E+01	1.96E+01	3.58E-02	4.83E+01	8E-02	6E-02	1E-04	1E-01	59.4%	40.6%	0.1%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

NA = Not applicable

TABLE 53. UCL EXPOSURE CALCULATIONS FOR SHREW - STATION HB04

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Prey (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water	
Inorganics																
	Datasource:	HB04	HB04	Earthworm HB04	NOAEL											
X	Antimony	0.84	2.7	0.066	0.15	1.25E-02	1.03E-02	5.90E-04	2.34E-02	8E-02	7E-02	4E-03	2E-01	53.4%	44.1%	2.5%
	Arsenic	26	30	0.39	0.15	7.27E-02	3.25E-01	6.70E-03	4.05E-01	5E-01	2E+00	4E-02	3E+00	18.0%	80.4%	1.7%
	Barium	15	35	0.83	12	1.57E-01	1.80E-01	7.79E-03	3.45E-01	1E-02	2E-02	7E-04	3E-02	45.5%	52.2%	2.3%
	Chromium	31	5.6	1.5	20	2.84E-01	3.81E-01	1.24E-03	6.66E-01	1E-02	2E-02	6E-05	3E-02	42.7%	57.1%	0.2%
	Copper	34	8.8	2.1	33	4.05E-01	4.19E-01	1.94E-03	8.26E-01	1E-02	1E-02	6E-05	2E-02	49.0%	50.7%	0.2%
	Lead	28	3.5	1.9	18	3.53E-01	3.45E-01	7.70E-04	6.99E-01	2E-02	2E-02	4E-05	4E-02	50.5%	49.4%	0.1%
	Manganese	87	548	1.5	193	2.79E-01	1.07E+00	1.21E-01	1.47E+00	1E-03	6E-03	6E-04	8E-03	19.0%	72.8%	8.2%
	Mercury	0.20	0.060	0.066	0.070	1.25E-02	2.52E-03	1.33E-05	1.50E-02	2E-01	4E-02	2E-04	2E-01	83.2%	16.7%	0.1%
	Selenium	0.66	1.6	0.11	0.44	2.05E-02	8.18E-03	3.44E-04	2.90E-02	5E-02	2E-02	8E-04	7E-02	70.6%	28.2%	1.2%
	Thallium	0.71	2.0	0.057	0.16	1.07E-02	8.81E-03	4.48E-04	1.99E-02	6E-02	5E-02	3E-03	1E-01	53.5%	44.2%	2.2%
	Zinc	64	163	53	352	1.00E+01	7.91E-01	3.58E-02	1.08E+01	3E-02	2E-03	1E-04	3E-02	92.4%	7.3%	0.3%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

NA = Not applicable

TABLE 54. UCL EXPOSURE CALCULATIONS FOR SHREW - REFERENCE

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Prey (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water
Inorganics															
X Antimony	1.0	0.55	0.083	0.15	1.57E-02	1.29E-02	1.21E-04	2.87E-02	1E-01	9E-02	8E-04	2E-01	54.5%	45.0%	0.4%
X Arsenic	33	3.2	0.45	0.15	8.48E-02	4.04E-01	7.04E-04	4.90E-01	6E-01	3E+00	5E-03	3E+00	17.3%	82.5%	0.1%
Barium	72	45	4.1	12	7.75E-01	8.89E-01	9.92E-03	1.67E+00	7E-02	8E-02	8E-04	1E-01	46.3%	53.1%	0.6%
Chromium	410	0.88	1.3	20	2.39E-01	5.06E+00	1.94E-04	5.30E+00	1E-02	3E-01	1E-05	3E-01	4.5%	95.5%	0.0%
Copper	93	3.9	2.8	33	5.29E-01	1.15E+00	8.58E-04	1.68E+00	2E-02	3E-02	3E-05	5E-02	31.4%	68.5%	0.1%
Lead	524	6.3	20	18	3.76E+00	6.47E+00	1.39E-03	1.02E+01	2E-01	4E-01	8E-05	6E-01	36.8%	63.2%	0.0%
Manganese	210	520	2.7	193	5.10E-01	2.59E+00	1.14E-01	3.21E+00	3E-03	1E-02	6E-04	2E-02	15.9%	80.6%	3.6%
Mercury	0.71	0.13	0.077	0.070	1.45E-02	8.77E-03	2.86E-05	2.33E-02	2E-01	1E-01	4E-04	3E-01	62.2%	37.7%	0.1%
Selenium	1.7	0.95	0.22	0.44	4.07E-02	2.08E-02	2.09E-04	6.18E-02	9E-02	5E-02	5E-04	1E-01	65.9%	33.7%	0.3%
Thallium	0.73	0.75	0.058	0.16	1.09E-02	8.99E-03	1.65E-04	2.00E-02	7E-02	5E-02	1E-03	1E-01	54.3%	44.9%	0.8%
Zinc	232	16	81	352	1.53E+01	2.86E+00	3.54E-03	1.81E+01	4E-02	8E-03	1E-05	5E-02	84.2%	15.8%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

NA = Not applicable

APPENDIX 7C.10

EXPOSURE FACTORS - AVERAGE MODELS

TABLE 1
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Muskrat - Ave

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	AR, BE-1, BE-2, BE-3, HB01, HB02-1, HB03-1, HB03-2, MC-09, MC-13, Ref	C	Chemical Concentration	see Appendix 7C.12	mg/kg or ug/L	see Appendix 7C.12	Dose _{food} (mg/kg BW-day) = $((FIW \times Pe_{animal} \times C_{animal}) + (FIW \times Pe_{plant} \times C_{plant})) \times ASUF \times TSUF$
		BW	Body Weight	0.837	kg	a	
		FIW	Food Intake Rate, wet	0.533	kg food _{wet} / kg BW _{wet} * day	b	
		FID	Food Intake Rate, dry	0.071	kg food _{dry} / kg BW _{wet} * day	c	
		Pe _{animal}	Animal Food Source Dietary Percentage	0.056	fraction on a wet weight basis, 10% on a dry weight basis	d	
		Pe _{plant}	Plant Food Source Dietary Percentage	0.944	fraction on a wet weight basis, 90% on a dry weight basis	d	
		WC _{animal}	water content (% moisture), animal tissue	0.767		e	
		WC _{plant}	water content (% moisture), plant tissue	0.87		f	
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.033	fraction on a dry weight basis (kg sed _{dry} / kg food _{dry})	g	
		SI _{water}	Surface Water Ingested	0.101	L _{water} / kg BW _{wet} * day	h	
		ASUF	Areal Site Use Factor	1	--	i	Dose _{water} (mg/kg BW-day) =
		TSUF	Temporal Site Use Factor	1	--	j	$SI_{water} \times C_{water} \times CF \times ASUF \times TSUF$
		SBAF	Soil/Sed Bioavailability Factor	1	--	k	
		CF	Conversion Factor	0.001	mg/ug	--	

Notes:

a Based on adult female. Source: Reeves and Williams (1956) cited in USEPA (1993d)

b Based on Equation: FIW = [Pe_{animal} * FID/(1-WC_{animal})] +[Pe_{plant} * FID/(1-WC_{plant})]. Source: Sample et al. (1997)

c Based on equation: FID = (0.0687 (BW)^{0.822})/BW for mammals. Source: Nagy (1987) cited in Sample et al. (1997)

d Based on diet composition of 90% plant and 10% animal (dry weight) converted to wet weight basis. Ten percent animal tissue was selected as a conservative value for the Aberjona River study area. Site specific crayfish tissue data were used to represent COPC concentrations in the animal portion of the diet. Sources: Martin, et al. (1951) and USEPA (1993d)

Pe_{animal} = (fraction animal tissue dry/(1-fraction water content animal tissue)) / ((fraction animal tissue dry/(1-fraction water content animal tissue)) + (fraction plant tissue dry/(1-fraction water content plant tissue)))

Pe_{plant} = (fraction plant tissue dry/(1-fraction water content plant tissue)) / ((fraction animal tissue dry/(1-fraction water content animal tissue)) + (fraction plant tissue dry/(1-fraction water content plant tissue)))

e Average % moisture measured in invertebrate tissue samples at Wells G&H Superfund Site (USEPA, 2004)

f Average % moisture measured in plant tissue samples at Wells G&H Superfund Site (USEPA, 2004)

g A conservative value for incidental sediment ingestion equivalent of 3.3% of diet (dry weight). Value used for mallard based on similar diet and feeding behavior. Source: Beyer et al. (1994)

h Based on equation: SI_{water} = (0.099 (BW)^{0.9})/BW for mammals. Source: Calder and Braun (1983) cited in Sample et al. (1997)

i Based on home range smaller than the exposure area. Source: USEPA (1993d)

j Assumes no migration, population present year-round

k Assumes 100% bioavailability of COPC

TABLE 2
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Otter - Ave

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	Sitewide, Reference	C	Chemical Concentration	see Appendix 7C.12	mg/kg or ug/L	see Appendix 7C.12	Dose _{food} (mg/kg BW-day) = $((FIW \times Pe_{animal} \times C_{animal}) + (FIW \times Pe_{invent} \times C_{invent})) \times ASUF \times TSUF$
		BW	Body weight	7.9	kg	a	
		FIW	Food Intake Rate, wet	0.1	kg food _{wet} / kg BW _{wet} * day	b	
		FID	Food Intake Rate, dry	0.025	kg food _{dry} / kg BW _{wet} * day	c	
		Pe _{animal}	Fish Food Source Dietary Percentage	0.8	fraction on a wet weight basis	d	
		Pe _{invent}	Invertebrate Food Source Dietary Percentage	0.2	fraction on a wet weight basis	d	
		WC _{animal}	Water content (% moisture), fish tissue	0.753		e	
		WC _{invent}	Water content (% moisture), invertebrate tissue	0.767		f	
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.02	fraction on a dry weight basis (kg sed _{dry} / kg food _{dry})	g	
		SI _{water}	Surface Water Ingested	0.08	L _{water} / kg BW _{wet} * day	h	
		ASUF	Areal Site Use Factor	1	--	i	Dose _{water} (mg/kg BW-day) =
		TSUF	Temporal Site Use Factor	1	--	j	SI _{water} x C _{water} x CF x ASUF x TSUF
		SBAF	Soil/Sed Bioavailability Factor	1	--	k	
		CF	Conversion Factor	0.001	mg/ug	--	

Notes:

a Based on adult female. Source: Melquist and Hornocker (1983) cited in USEPA (1993d)

b Source: Harris (1968) cited in USEPA (1993d)

c Wet food intake rate converted to dry food intake rate using the following formula: FID = [FIW * Pe_{animal} * (1-WC_{animal})] + [FIW * Pe_{invent} * (1-WC_{invent})]. Source: Sample et al. (1997)

d Based on diet composition of 80% fish and 20% invertebrate. The diet of the river otter consists primarily of fish, although they may consume aquatic invertebrates and crustaceans. Small mammals, amphibians, insects, birds, and reptiles may also be consumed, as available. USEPA (2003b) documented crayfish as 20% of river otter diet in the Housatonic River. Sources: USEPA (1993d); USEPA (2003b)

e Average % moisture measured in fish tissue samples at Wells G&H Superfund Site (USEPA, 2004)

f Average % moisture measured in invertebrate tissue samples at Wells G&H Superfund Site (USEPA, 2004)

g A conservative value for incidental sediment ingestion equivalent of 2% of diet (dry weight). Value used is the lower end of range as observed for other species in Beyer et al. (1994) with similar diet

h Source: Sample and Suter (1999)

i Based on home range smaller than the exposure area. Source: USEPA (1993d)

j Assumes no migration, population present year-round

k Assumes 100% bioavailability of COPC

TABLE 3
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Heron - Ave

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	Sitewide, Reference	C	Chemical Concentration	see Appendix 7C.12	mg/kg or ug/L	see Appendix 7C.12	Dose _{food} (mg/kg BW-day) = ((FIW x Pe _{animal} x C _{animal}) + (FIW x Pe _{invert} x C _{invert})) x ASUF x TSUF
		BW	Body Weight	0.212	kg	a	
		FIW	Food Intake Rate, wet	0.19	kg food _{wet} / kg BW _{wet} * day	b	
		FID	Food Intake Rate, dry	0.0454	kg food _{dry} / kg BW _{wet} * day	c	
		Pe _{animal}	Fish Food Source Dietary Percentage	0.45	fraction on a wet weight basis	d	
		Pe _{invert}	Invertebrate Food Source Dietary Percentage	0.55	fraction on a wet weight basis	d	
		WC _{animal}	Water content (% moisture), animal tissue	0.753		e	
		WC _{invert}	Water content (% moisture), invertebrate tissue	0.767		f	
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.01	fraction on a dry weight basis (kg sed _{dry} / kg food _{dry})	g	
		SI _{water}	Surface Water Ingested	0.098	L _{water} / kg BW _{wet} * day	h	
		ASUF	Areal Site Use Factor	1	--	i	Dose _{water} (mg/kg BW-day) = SI _{water} x FID x C _{soil/sed} x ASUF x TSUF x SBAF
		TSUF	Temporal Site Use Factor	0.5	--	j	
		SBAF	Soil/Sed Bioavailability Factor	1	--	k	
		CF	Conversion Factor	0.001	mg/ug	--	

a Based on adult. Source: Nelson and Martin (1953) cited in USEPA (1993d)

b Source: Kushlan (1978) cited in Sample *et al.* (1997)

c Based on equation: FID = FIW * (1-WC_{animal})*(1-WC_{invert})/((Pe_{animal}*(1-WC_{animal})) + (Pe_{invert}*(1-WC_{animal}))). Source: Nagy (1987) cited in Sample *et al.* (1997)

d Based on diet composition of 45% fish and 55% animal on a wet weight basis. Source: Meyerriecks (1962) cited in Sample *et al.* (1997)

e Average % moisture measured in fish tissue samples at Wells G&H Superfund Site (USEPA, 2004)

f Average % moisture measured in invertebrate tissue samples at Wells G&H Superfund Site (USEPA, 2004)

g A conservative value for incidental sediment ingestion equivalent of 1% of diet (dry weight). Source: Sample *et al.* (1997)

h Based on equation: SI_{water} = (0.059 (BW)^{0.67}/BW for birds. Source: Calder and Braun (1983) cited in Sample *et al.* (1997)

i Based on home range smaller than the exposure area. Source: USEPA (1993d)

j Assumes migration, population present onsite six months per year

k Assumes 100% bioavailability of COPC

TABLE 4
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Mallard - Ave

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/Reference	Intake Equation/Model Name
Ingestion	HBHA wetland, HBHA pond, Sitewide, Reference	C	Chemical Concentration	see Appendix 7C.12	mg/kg or ug/L	see Appendix 7C.12	Dose _{food} (mg/kg BW-day) = $((FIW \times Pe_{animal} \times C_{animal}) + (FIW \times Pe_{plant} \times C_{plant})) \times ASUF \times TSUF$
		BW	Body weight	1.043	kg	a	
		FIW	Food Intake Rate, wet	0.312	kg food _{wet} / kg BW _{wet} * day	b	
		FID	Food Intake Rate, dry	0.057	kg food _{dry} / kg BW _{wet} * day	c	
		Pe _{animal}	Animal Food Source Dietary Percentage	0.522	fraction on a wet weight basis, 67% on a dry weight basis	d, l	
		Pe _{plant}	Plant Food Source Dietary Percentage	0.478	fraction on a wet weight basis, 33% on a dry weight basis	d, m	
		WC _{animal}	Water content (% moisture), animal tissue	0.767		e	
		WC _{plant}	Water content (% moisture), plant tissue	0.87		f	
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.033		g	
		SI _{water}	Surface Water Ingested	0.058	fraction on a dry weight basis (kg sed _{dry} / kg food _{dry}) L _{water} / kg BW _{wet} * day	h	
		ASUF	Areal Site Use Factor	1	--	i	Dose _{water} (mg/kg BW-day) = SI _{water} x C _{water} x CF x ASUF x TSUF
		TSUF	Temporal Site Use Factor	0.5	--	j	
		SBAF	Soil/Sed Bioavailability Factor	1	--	k	
		CF	Conversion Factor	0.001	mg/ug	--	

Notes:

a Based on adult female. Source: Nelson and Martin (1953) cited in USEPA (1993d)

b Based on Equation: FIW = Pe_{animal} * FID/(1-WC_{animal}) + Pe_{plant} * FID/(1-WC_{plant}). Source: Nagy (1987) cited in Sample et al. (1997)

c Based on equation: FID = (0.0582 (BW)^{0.651})/BW for birds. Source: Nagy (1987) cited in Sample et al. (1997)

d Based on diet composition of 33% plant and 67% animal (dry weight) converted to wet weight basis. Source: Swanson et al. (1985) cited in USEPA (1993d)

Pe_{animal} = (fraction animal tissue dry/(1-fraction water content animal tissue)) / ((fraction animal tissue dry/(1-fraction water content animal tissue)) + (fraction plant tissue dry/(1-fraction water content plant tissue)))

Pe_{plant} = (fraction plant tissue dry/(1-fraction water content plant tissue)) / ((fraction animal tissue dry/(1-fraction water content animal tissue)) + (fraction plant tissue dry/(1-fraction water content plant tissue)))

e Average % moisture measured in invertebrate tissue samples at Wells G&H Superfund Site (USEPA, 2004)

f Average % moisture measured in plant tissue samples at Wells G&H Superfund Site (USEPA, 2004)

g A conservative value for incidental sediment ingestion equivalent of 3.3% of diet (dry weight). Source: Beyer et al. (1994)

h Based on equation: SI_{water} = (0.059 (BW)^{0.67})/BW for birds. Source: Calder and Braun (1983) cited in Sample et al. (1997)

i Based on home range smaller than the exposure area. Source: USEPA (1993d)

j Assumes migration, population present onsite six months per year

k Assumes 100% bioavailability of COPC

TABLE 5
VALUES USED FOR DAILY INTAKE CALCULATIONS

INDUSTRI-PLEX SUPERFUND SITE

Receptor Population: Shrew- Ave

Exposure Route	Exposure Point	Parameter Code	Parameter Definition	Value	Units	Rationale/ Reference	Intake Equation/ Model Name
Ingestion	A6, BE-1, BE-2, BE-4, HB02-2, HB03-3, HB04, Ref	C	Chemical Concentration	see Appendix 7C.12	mg/kg or ug/L	see Appendix 7C.12	Dose _{food} (mg/kg BW-day) = $((FIW \times Pe_{animal} \times C_{animal}) \times ASUF \times TSUF)$
		BW	Body Weight	0.015	kg	a	
		FIW	Food Intake Rate, wet	0.6	kg food _{wet} / kg BW _{wet} * day	b	
		FID	Food Intake Rate, dry	0.095	kg food _{dry} / kg BW _{wet} * day	c	
		Pe _{animal}	Animal Food Source Dietary Percentage	0.314	fraction on a wet weight basis	d	
		WC _{animal}	Water content (% moisture), animal tissue	0.84		e	
		SI _{soil/sed}	Inadvertent soil or sediment ingested	0.13	fraction on a dry weight basis (kg sed _{dry} / kg food _{dry})	f	
		SI _{water}	Surface Water Ingested	0.22	L _{water} / kg BW _{wet} * day	g	
		ASUF	Areal Site Use Factor	1	--	h	Dose _{water} (mg/kg BW-day) = $SI_{water} \times C_{water} \times CF \times ASUF \times TSUF$
		TSUF	Temporal Site Use Factor	1	--	i	
		SBAF	Soil/Sed Bioavailability Factor	1	--	j	
		CF	Conversion Factor	0.001	mg/ug	--	

a Based on adult. Source: Schlessinger and Potter (1974) cited in Sample and Suter (1994)

b Source: Barrett & Stuek (1976) cited in USEPA (1993d)

c Wet food intake rate converted to dry food intake rate using the following formula: FID = FIW * (1-WC_{animal}). Source: Sample (1997)

d Based on diet composition 31.4% earthworms (wet weight). Source: Whitaker and Ferraro (1963) cited in Sample and Suter (1994). The remainder of the diet is assumed to consist of terrestrial invertebrates containing significantly lower COPC body burdens.

e Average % moisture measured in earthworm tissue. Source: Sample and Suter (1994)

f A conservative value for incidental sediment ingestion equivalent of 13% of diet (dry weight). Source: Talmage and Walton (1993) cited in Sample and Suter (1994)

g Based on Chew (1951) cited in Sample and Suter (1994)

h Based on home range smaller than the exposure area. Source: USEPA (1993d)

i Assumes no migration, population present year-round

j Assumes 100% bioavailability of COPC

APPENDIX 7C.11

EXPOSURE POINT CONCENTRATIONS - AVERAGES

TABLE 1. SUMMARY INFORMATION - SEDIMENT AND SOIL STATION AVERAGES

Receptor:	Muskrat												Mallard				Heron		Otter				Shrew					Ref Wetland
	AR	BE-1	BE-2	BE-3	HB01	HB02-1	HB03-1	HB03-2	MC-09	MC-13	Ref	HBHA wetland	HBHA pond	Sitewide	Ref	Sitewide	Ref	A6	BE-1	BE-2	BE-4	HB02-2	HB03-3	HB04				
Metals - Total (mg/Kg)																												
Aluminum	9860	6675	11723	10100	6184	10615	7296	10780	17500	18100	7696	10236	6184	9382	7696				12	1.0	2.5	1.5	6.8	5.2	0.67	0.75		
Antimony	4.6	1.0	2.5	1.5	5.1	4.1	2.3	3.6	7.3	2.8	0.80	4.2	5.1	4.1	0.80				276	21	219	61	671	231	22	21		
Arsenic	364	21	219	88	203	651	334	476	802	339	15	543	203	386	15				130	53	53	30	110	89	13	48		
Barium																												
Cadmium	5.0	1.9	3.5	3.1	11	24	7.3	15	30	5.3	1.0																	
Chromium	295	31	60	46	217	351	227	348	641	956	74	336	217	280	74	316	74			417	31	60	105	256	155	25	129	
Cobalt	10	6.9	20	17	14	59	29	30	75	21	7.4									219	75	162	55	349	253	28	57	
Copper	400	75	162	84	745	551	250	497	1110	486	48									1223	113	169	214	245	177	20	332	
Lead	164	113	169	162	254	246	80	212	397	647	185	208	254	215	185	235	185			122	168	368	364	948	755	76	133	
Manganese																												
Mercury																				3.4	0.13	0.23	0.17	0.65	0.59	0.16	0.28	
Selenium	6.1	2.6	2.7	1.8	2.1	2.5	1.7	3.3	5.5	2.1	0.83									2.5	2.6	2.7	4.1	6.4	3.5	0.54	0.76	
Thallium																				14	1.0	1.6	1.2	10	2.7	0.58	0.47	
Vanadium	30	30	57	41	20	41	20	36	57	65	32									342	415	1288	343	2070	1207	53	155	
Zinc	811	415	1288	609	2534	5569	1891	3667	7420	1200	148	4354	2534	2980	148	3692	148											

Notes

Only parameters selected as COPCs for each receptor have been presented. Remaining parameters have been shaded.

Ref - Reference

TABLE 2. SUMMARY INFORMATION - SURFACE WATER AVERAGES

Receptor:	Muskrat											Mallard				Heron			Otter			Shrew					Ref Wetland
	AR	BE-1	BE-2	BE-3	HB01	HB02-1	HB03-1	HB03-2	MC-09	MC-13	Ref	HBHA wetland	HBHA pond	Sitewide	Ref	Sitewide	Ref	Sitewide	Ref	BE-1	BE-2	BE-4	HB02-2	HB03-3	HB04		
Metals - Total (ug/L)																											
Aluminum	62	NA	NA	NA	61	101	101	101	200	62	351	101	61	77	351												
Antimony	1.0	NA	NA	NA	3.0	2.2	2.2	2.2	9.2	9.2	4.4	5.6	3.4	2.6	8.9					NA	NA	NA	2.2	2.2	2.2	0.55	
Arsenic	17	NA	NA	NA	28	26	26	26	50	27	3.1	26	28	25	3.1					NA	NA	NA	26	26	26	3.2	
Barium																			NA	NA	NA	33	33	33	45		
Cadmium	0.18	NA	NA	NA	0.55	0.24	0.24	0.24	0.39	0.39	0.22																
Chromium	1.9	NA	NA	NA	2.7	4.5	4.5	4.5	10	11	2.2	4.5	2.7	3.3					NA	NA	NA	4.5	4.5	4.5	0.88		
Cobalt	0.45	NA	NA	NA	1.7	1.1	1.1	1.1	1.5	1.5	1.4																
Copper	3.7	NA	NA	NA	7.5	7.4	7.4	7.4	12	2.8	2.9								NA	NA	NA	7.4	7.4	7.4	3.9		
Lead	1.5	NA	NA	NA	1.8	2.8	2.8	2.8	4.6	1.4	7.8	2.8	1.8	2.1	7.8	2.3	7.8					NA	NA	2.8	2.8	6.3	
Manganese																			NA	NA	NA	493	493	493	520		
Mercury												0.051	0.047	0.050	0.066	0.049	0.066										
Selenium	1.4	NA	NA	NA	1.6	1.5	1.5	1.5	0.55	0.55	0.87								NA	NA	NA	0.051	0.051	0.051	0.13		
Thallium																			NA	NA	NA	1.5	1.5	1.5	0.95		
Vanadium	0.43	NA	NA	NA	1.3	1.2	1.2	1.2	5.9	5.4	2.2								NA	NA	NA	1.7	1.7	1.7	0.75		
Zinc	36	NA	NA	NA	208	138	138	138	192	39	14	138	208	138	14	170	14										

Notes

Only parameters selected as COPCs for each receptor have been presented. Remaining parameters have been shaded.

Ref - Reference

NA - Not Analyzed or Not Available

TABLE 3. SUMMARY INFORMATION - BENTHIC INVERTEBRATE TISSUE STATION AVERAGES

Receptor:	Muskrat								Mallard				Heron		Otter	
	MC-06	MC-08	MC-09	MC-11	MC-13	HBHA wetland	Sitewide	Ref	HBHA wetland	HBHA pond	Sitewide	Ref	Sitewide	Ref	Sitewide	Ref
<u>Metals - Total (mg/Kg)</u>																
Aluminum	300	21	18	32	200	24	114	56	24	300	114	56				
Antimony	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25				
Arsenic	26	5.8	8.3	4.3	9.8	6.1	11	0.52	6.1	26	11	0.52			9.4	0.46
Barium																
Cadmium	0.57	0.25	0.25	0.25	0.25	0.25	0.31	0.25								
Chromium	16	1.4	1.7	2.2	16	1.8	7.5	1.6	1.8	16	7.5	1.6	7.5	1.6		
Cobalt	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0								
Copper	22	5.0	20	5.0	18	10	14	5.0								
Lead	13	0.50	0.50	1.1	8.1	0.70	4.6	2.5	0.70	13	4.6	2.5	4.6	2.5		
Manganese																
Mercury									0.050	NA	0.050	0.050	0.050	0.050		
Selenium	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25								
Thallium																
Vanadium	1.0	0.25	0.25	0.25	0.97	0.25	0.54	0.47								
Zinc	160	35	27	26	46	29	59	15	29	160	59	15	59	15		

Notes

Only parameters selected as COPCs for each receptor have been presented. Remaining parameters have been shaded.

Ref - Reference

NA - Not Analyzed or Not Available

TABLE 4. SUMMARY INFORMATION - PLANT TISSUE STATION AVERAGES

Receptor:	Muskrat							Mallard			
	MC-06	MC-08	MC-09	MC-11	HBHA wetland	Sitewide	Ref	HBHA wetland	HBHA pond	Sitewide	Ref
Metals - Total (mg/Kg)											
Aluminum	38	154	79	60	113	102	105	113	38	102	105
Antimony	0.25	0.31	0.25	0.25	0.28	0.27	0.25	0.28	0.25	0.27	0.25
Arsenic	22	32	14	15	23	23	1.7	23	22	23	1.7
Barium											
Cadmium	0.25	0.66	0.32	0.25	0.48	0.44	0.25				
Chromium	1.7	5.5	3.2	2.4	4.2	3.8	1.5	4.2	1.7	3.8	1.5
Cobalt	5.0	8.3	5.0	5.0	6.6	6.4	5.0				
Copper	10	12	6.4	6.5	9.1	9.2	5.0				
Lead	2.8	5.7	2.0	1.9	3.8	3.7	3.1	3.8	2.8	3.7	3.1
Manganese											
Mercury								0.050	0.050	0.050	0.050
Selenium	0.25	0.28	0.25	0.25	0.26	0.26	0.25				
Thallium											
Vanadium	0.25	0.74	0.43	0.42	0.58	0.54	1.0				
Zinc	50	277	60	45	166	149	12	166	50	149	12

Notes

Only parameters selected as COPCs for each receptor have been presented. Remaining parameters have been shaded.

Ref - Reference

NA - Not Analyzed or Not Available

TABLE 5. SUMMARY INFORMATION - SMALL FISH TISSUE STATION AVERAGES

Parameter	Receptor:		Otter	
	Sitewide	Ref	Sitewide	Ref
<u>Metals - Total (mg/Kg)</u>				
Aluminum				
Antimony				
Arsenic			0.63	0.096
Barium				
Cadmium				
Chromium	0.50	0.50		
Cobalt				
Copper				
Lead	0.50	0.50		
Manganese				
Mercury	0.050	0.075		
Selenium				
Thallium				
Vanadium				
Zinc	23	24		

Notes

Only parameters selected as COPCs for each receptor have been presented.

Remaining parameters have been shaded.

Ref - Reference

NA - Not Analyzed or Not Available

APPENDIX 7C.12

ESTIMATION OF AVERAGE COPC CONCENTRATIONS IN EARTHWORM TISSUE

TABLE 1
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
AVERAGE EXPOSURE CASE
STATION A6
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	12	0.93
Arsenic	276	2.0
Barium	130	7.4
Chromium	417	1.3
Copper	219	3.5
Lead	1223	40
Manganese	122	1.9
Mercury	3.4	0.093
Selenium	2.5	0.29
Thallium	14	1.1
Zinc	342	92

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se, and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

TABLE 2
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
AVERAGE EXPOSURE CASE
STATION BE-1
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	1.0	0.079
Arsenic	21	0.33
Barium	53	3.0
Chromium	31	1.5
Copper	75	2.6
Lead	113	5.8
Manganese	168	2.3
Mercury	0.13	0.063
Selenium	2.6	0.30
Thallium	1.0	0.079
Zinc	415	98

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

TABLE 3
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
AVERAGE EXPOSURE CASE
STATION BE-2
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	2.5	0.20
Arsenic	219	1.7
Barium	53	3.0
Chromium	60	1.4
Copper	162	3.2
Lead	169	8.0
Manganese	368	4.0
Mercury	0.23	0.067
Selenium	2.7	0.31
Thallium	1.6	0.13
Zinc	1288	142

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

TABLE 4
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
AVERAGE EXPOSURE CASE
STATION BE-4
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	1.5	0.12
Arsenic	61	0.70
Barium	30	1.7
Chromium	105	1.4
Copper	55	2.4
Lead	214	9.7
Manganese	364	3.9
Mercury	0.17	0.065
Selenium	4.1	0.41
Thallium	1.2	0.092
Zinc	343	92

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

TABLE 5
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
AVERAGE EXPOSURE CASE
STATION HB02-2
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	6.8	0.54
Arsenic	671	3.8
Barium	110	6.3
Chromium	256	1.3
Copper	349	4.0
Lead	245	11
Manganese	948	7.6
Mercury	0.65	0.076
Selenium	6.4	0.58
Thallium	10	0.80
Zinc	2070	166

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

TABLE 6
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
AVERAGE EXPOSURE CASE
STATION HB03-3
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	5.2	0.41
Arsenic	231	1.8
Barium	89	5.1
Chromium	155	1.4
Copper	253	3.7
Lead	177	8.3
Manganese	755	6.5
Mercury	0.59	0.075
Selenium	3.5	0.37
Thallium	2.7	0.21
Zinc	1207	139

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

TABLE 7
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
AVERAGE EXPOSURE CASE
STATION HB04
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	0.67	0.053
Arsenic	22	0.34
Barium	13	0.72
Chromium	25	1.5
Copper	28	2.0
Lead	20	1.4
Manganese	76	1.4
Mercury	0.16	0.064
Selenium	0.54	0.093
Thallium	0.58	0.046
Zinc	53	50

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

TABLE 8
ESTIMATION OF COPC CONCENTRATIONS IN EARTHWORM TISSUE
AVERAGE EXPOSURE CASE
WETLAND REFERENCE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	C _s (mg/kg)	C _v ¹ (mg/kg)
Inorganics		
Antimony	0.75	0.060
Arsenic	21	0.32
Barium	48	2.7
Chromium	129	1.4
Copper	57	2.5
Lead	332	14
Manganese	133	2.0
Mercury	0.28	0.069
Selenium	0.76	0.12
Thallium	0.47	0.037
Zinc	155	71

Notes

1. Values for As, Cr, Cu, Pb, Mn, Hg, Se and Zn are based on regression analyses on literature derived soil-biota uptake data provided in Sample et al. (1998).

Concentration factor for Ba was taken from Beyer and Stafford (1993). An uptake factor of 0.5 was conservatively assumed for Sb and Tl.

COPC - Chemical of Potential Concern

C_s - COPC concentration in sediment (mg/kg)

C_v - Concentration in Worms (mg/kg - body weight wet)

APPENDIX 7C.13

TOXICITY REFERENCE VALUES - LOAELs

TABLE 1
COMPARISON OF TOXICITY REFERENCE VALUES FOR MUSKRAT

INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV mg/kg - d ³	Test TRV Type	Source ⁴	Wildlife TRV (mg/kg-d) ^{5,6}
Aluminum									
AlCl ₃	mouse	0.03	oral in water	3 gen	reproduction	19.3	LOAEL	Sample et al., 1996	22.95
Antimony									
Antimony potassium tartrate	mouse	0.03	oral in water (chronic)	lifetime, >1 year	lifespan	1.25	LOAEL	Sample et al., 1996	1.49
Arsenic									
Arsenite	rat	0.35	oral (chronic)	2 yr	growth	4	LOAEL	ATSDR, 2000	3.22
Arsenate	mouse	0.03	oral in water (chronic)	26 months	tumors	0.07	LOAEL	Eisler, 2000	0.03
Arsenite	mouse	0.03	oral (chronic)	2 yr	growth	1	LOAEL	Eisler, 2000	0.44
Arsenite	rat	0.35	oral in water (subchronic)	6 wk	serum uric acid	1.2	LOAEL	Eisler, 2000	0.96
Arsenate	rat	0.35	oral in diet (subchronic)	10 wk	serum uric acid	50	LOAEL	Eisler, 2000	40.21
Arsenic trioxide	rat	0.35	oral in diet (subchronic)	21 d	systemic	50	LOAEL	Eisler, 2000	40.21
Arsenic trioxide	rat	0.35	single oral dose	96h	mortality	15.1	LD50 ^a	Eisler, 2000	12.14
Arsenite	rat	0.35	oral (subchronic)	23 d	growth	8	NOAEL	ATSDR, 2000	6.43
Arsenite	mouse	0.03	oral in water (chronic)	3 gen	reproductive	1.26	LOAEL	Sample et al., 1996	0.55
Arsenite	rat	0.35	oral (chronic)	2 yr	growth	2	NOAEL	ATSDR, 2000	1.61
Arsenate	rat	0.35	oral (chronic)	27 months	growth	7	LOAEL	ATSDR, 2000	5.63
Arsenate	rat	0.35	oral (chronic)	27 months	growth	30	LOAEL	ATSDR, 2000	24.12
Arsenite	cotton rat	1.20	oral in water(intermediate)	6 wk	systemic, immune	5	LOAEL	Eisler, 2000	5.47
Cadmium									
Cadmium chloride	rat	0.30	oral gavage (chronic)	6 wk	reproductive	1.0	NOAEL	Sample et al., 1996	0.78
Cadmium chloride	rat	0.30	oral gavage (chronic)	6 wk	reproductive	10.0	LOAEL	Sample et al., 1996	7.76
Cadmium chloride	rat	0.35	oral in water (subchronic)	14 wk	reproductive	40	LOAEL	ATSDR, 1999	32.17
Cadmium chloride	rat	0.35	oral in water (subchronic)	12 wk	reproductive	8.58	LOAEL	ATSDR, 1999	6.90
Cadmium chloride	rat	0.35	oral in water (subchronic)	14 wk	reproductive	5.8	LOAEL	ATSDR, 1999	4.66
Cadmium chloride	rat	0.35	oral in water (subchronic)	14 wk	reproductive	11.6	LOAEL	ATSDR, 1999	9.33
Cadmium acetate	rat	0.35	oral in water (subchronic)	120 d	reproductive	12.6	LOAEL	ATSDR, 1999	10.13
Cadmium chloride	mouse	0.03	oral in water (chronic)	6 months	reproductive	2.5	LOAEL	ATSDR, 1999	1.09

TABLE 1, Continued
COMPARISON OF TOXICITY REFERENCE VALUES FOR MUSKRAT

INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV mg/kg - d ³	Test TRV Type	Source ⁴	Wildlife TRV (mg/kg-d) ^{5,6}
Chromium									
Chromium oxide (Cr III)	rat	0.35	oral in food (subchronic)	90 d and 2 yr	reproductive	2737.00	NOAEL	Sample, 1996	2200.95
Chromium Chloride (Cr III)	rat	0.35	oral in food (subchronic)	20 weeks	systemic	9.00	NOAEL	ATSDR, 2000	7.24
Chromium Chloride (Cr III)	rat	0.35	oral in water (subchronic)	12 weeks	reproductive	40.00	LOAEL	ATSDR, 2000	32.17
Chromium Chloride (Cr III)	mouse	0.03	oral in water (subchronic)	12 weeks	reproductive	5.00	LOAEL	ATSDR, 2000	2.18
Chromium sulfate (Cr III)	mouse	0.03	oral in food (subchronic)	7 wk	reproductive	9.10	LOAEL	ATSDR, 2000	3.96
Potassium dichromate (Cr VI)	rat	0.35	oral in water (chronic)	1 yr		3.28	NOAEL	Sample, 1996	2.64
Potassium dichromate (Cr VI)	rat	0.35	oral in food (subchronic)	20 d	reproductive	37	LOAEL	ATSDR, 2000	29.75
Potassium dichromate (Cr VI)	rat	0.35	oral in food (subchronic)	3 months	reproductive	45	LOAEL	ATSDR, 2000	36.19
Potassium dichromate (Cr VI)	rat	0.35	oral in water (subchronic)	12 wk	reproductive	42	LOAEL	ATSDR, 2000	33.77
Potassium dichromate (Cr VI)	rat	0.35	oral in water (subchronic)	90 d	reproductive	20	LOAEL	ATSDR, 2000	16.08
Potassium dichromate (Cr VI)	mouse	0.03	oral in water (subchronic)	12 weeks	reproductive	6.00	LOAEL	ATSDR, 2000	2.61
Potassium dichromate (Cr VI)	mouse	0.03	oral in water (subchronic)	20 d	reproductive	52.00	LOAEL	ATSDR, 2000	22.63
Potassium dichromate (Cr VI)	mouse	0.03	oral in water (subchronic)	20 d	reproductive	60.00	LOAEL	ATSDR, 2000	26.11
Potassium dichromate (Cr VI)	mouse	0.03	oral in water (subchronic)	19 d	reproductive	46.00	LOAEL	ATSDR, 2000	20.02
Potassium dichromate (Cr VI)	mouse	0.03	oral in food (subchronic)	7 wk	reproductive	15.20	LOAEL	ATSDR, 2000	6.61
Cr VI (form unknown)	rat	0.35	oral in food (subchronic)	3 months	mortality	80.00	LOAEL	Eisler, 2000	64.33
Cobalt									
Cobalt chloride	rat	0.35	oral (subchronic)	90 d	reproductive	30.20	LOAEL	ATSDR, 2001	24.29
Cobalt chloride	mouse	0.03	oral (subchronic)	13 wk	reproductive	23.00	LOAEL	ATSDR, 2001	10.01
Cobalt chloride	rat	0.35	oral (subchronic)	98 d	reproductive	20.00	LOAEL	ATSDR, 2001	16.08
Cobalt chloride	rat	0.35	oral (subchronic)	98 d	reproductive	13.25	LOAEL	ATSDR, 2001	10.65
Cobalt chloride	mouse	0.03	oral (subchronic)	13 wk	reproductive	43.00	LOAEL	ATSDR, 2001	18.71
Cobalt chloride	rat	0.35	oral (subchronic)	69 d	reproductive	20.00	LOAEL	ATSDR, 2001	16.08
Copper									
Copper sulfate	mink	1.0	oral in diet (chronic)	357 d	reproductive	11.7	NOAEL	Sample et al., 1996	12.23
Copper sulfate	mink	1.0	oral in diet (chronic)	357 d	reproductive	15.1	LOAEL	Sample et al., 1996	15.83
Copper acetate	rat	0.35	oral in diet (chronic)	60-73 d	reproductive	130.0	LOAEL	ATSDR, 2002	104.54
Copper gluconate	mouse	0.03	oral in water (chronic)	850 d	life span	4.2	LOAEL	ATSDR, 2002	1.83

TABLE 1, Continued
COMPARISON OF TOXICITY REFERENCE VALUES FOR MUSKRAT

INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV mg/kg - d ³	Test TRV Type	Source ⁴	Wildlife TRV (mg/kg-d) ^{5,6}
Lead									
Lead acetate	rat	0.35	oral in diet (chronic)	3 gen	reproductive	8.0	NOAEL	Sample et al., 1996	6.43
Lead acetate	rat	0.35	oral in diet (chronic)	3 gen	reproductive	80.0	LOAEL	Sample et al., 1996	64.33
Lead (form unknown)	rat	0.35	oral in water (subchronic)	6-7 wk	reproductive	0.3	LOAEL	Eisler, 2000	0.27
Lead (form unknown)	rat	0.35	oral in diet (subchronic)	3 wk	mortality	200.0	LOAEL	Eisler, 2000	160.83
Lead (form unknown)	rat	0.35	oral in water (chronic)	life time	mortality	0.1	LOAEL	Eisler, 2000	0.06
Lead (form unknown)	rat	0.35	oral in diet (subchronic)	130 d	reproductive	52.6	LOAEL	Eisler, 2000	42.30
Lead acetate	rat	0.35	oral in water (subchronic)	14 - 50 d	reproductive	502.0	LOAEL	ATSDR, 1999	403.68
Lead acetate	rat	0.35	oral in water (subchronic)	60 d	reproductive	90.0	LOAEL	ATSDR, 1999	72.37
Lead acetate	rat	0.35	oral in diet (subchronic)	30 d	reproductive	0.3	LOAEL	ATSDR, 1999	0.24
Lead acetate	mouse	0.03	oral in water (subchronic)	11 wk	reproductive	10.5	LOAEL	Eisler, 2000	4.57
Lead (form unknown)	mouse	0.03	oral in water (subchronic)	9 months	reproductive	13.1	NOAEL	Eisler, 2000	5.70
Lead acetate	mouse	0.03	oral in water (chronic)	multi-gen	mortality	605.0	NOAEL	ATSDR, 1999	263.24
Lead acetate	mouse	0.03	oral in water (subchronic)	12 wk	reproductive	141.0	NOAEL	ATSDR, 1999	61.35
Lead acetate	cotton rat	1.20	oral in water (subchronic)	7-13 wk	immune, systemic	0.1	LOAEL	Eisler, 2000	0.14
Selenium									
Selanate	rat	0.35	oral in water (chronic)	1 year	reproductive	0.2	NOAEL	Sample et al., 1996	0.16
Selanate	rat	0.35	oral in water (chronic)	1 year	reproductive	0.33	LOAEL	Sample et al., 1996	0.27
Selinite	rat	0.35	oral in diet (subchronic)	15 wk	reproductive	0.1	LOAEL	ASTDR, 2001	0.08
Selinate	rat	0.35	oral in water (subchronic)	13 wk	reproductive	0.3	LOAEL	ASTDR, 2001	0.24
Selinite	rat	0.35	oral in water(subchronic)	13 wk	reproductive	0.5	NOAEL	ASTDR, 2001	0.40
Selinite	rat	0.35	oral in water(subchronic)	13 wk	reproductive	0.2	LOAEL	ASTDR, 2001	0.16
Selinite	mouse	0.35	oral in water(subchronic)	48 d	reproductive	0.34	LOAEL	ASTDR, 2001	0.27
Selinate	mouse	0.35	oral in water(subchronic)	13 wk	reproductive	7.17	NOAEL	ASTDR, 2001	5.77

TABLE 1, Continued
COMPARISON OF TOXICITY REFERENCE VALUES FOR MUSKRAT

INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV mg/kg - d ³	Test TRV Type	Source ⁴	Wildlife TRV (mg/kg-d) ^{5,6}
Vanadium									
Sodium metavanadate	rat	0.35	oral intubation	60 d	reproductive	2.1	LOAEL	Sample et al., 1996	1.69
Zinc									
Zinc oxide	rat	0.35	oral in diet (chronic)	16 d	reproduction	160	NOAEL	Sample et al., 1996	128.66
Zinc oxide	rat	0.35	oral in diet (chronic)	16 d	reproduction	320	LOAEL	Sample et al., 1996	257.33
Zinc chloride	rat	0.35	oral in diet (subchronic)	18 d	reproduction	200	LOAEL	ATSDR, 2003	160.83
Zinc chloride	mouse	0.03	oral in diet (subchronic)	42 d	reproduction	273	NOAEL	ATSDR, 2003	118.78

d - day

wk - week

gen - generations

UF - Uncertainty Factor

COPC - Chemical of Potential Concern

TRV - Reference Toxicity Value

NOAEL - No Observed Adverse Effect Level

LOAEL - Lowest Observed Adverse Effect Level

1 COPC or COPC and analyte/compound used in toxicological testing

2 Body weight for mouse and rat based on USEPA (1985b cited in Sample et al., 1996), other body weights are actual body weights of animals used in test

3 TRV's for studies in which dose was administered five times per week were multiplied for a factor of 0.7.

4 Documents cited are review documents (i.e., secondary sources). Citations for primary sources may be obtained from these documents.

5 The bold values were selected for use in calculating LOAEL HQ's

6 Test NOAELs and LOAELs were adjusted for wildlife species body weight using the following equation: NOAEL_{wildlife} = NOAEL_{test} * (BW_{test}/BW_{wildlife}) ^ 0.25 (Sample et al., 1996)

a An LD₅₀ was divided by 10 to obtain a LOAEL

TABLE 2
COMPARISON OF TOXICITY REFERENCE VALUES FOR OTTER

INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV mg/kg - d ³	Test TRV Type	Source ⁴	Wildlife TRV (mg/kg-d) ^{5,6}
Arsenic									
Arsenite	mouse	0.03	oral in water (chronic)	3 gen	reproductive	1.26	LOAEL	Sample et al., 1996	0.31
Arsenate	mouse	0.03	oral in water (chronic)	26 months	tumors	0.07	LOAEL	Eisler, 2000	0.02
Arsenite	mouse	0.03	oral (chronic)	2 yr	growth	1	LOAEL	Eisler, 2000	0.25
Arsenite	rat	0.35	oral in water (subchronic)	6 wk	serum uric acid	1.2	LOAEL	Eisler, 2000	0.55
Arsenate	rat	0.35	oral in diet (subchronic)	10 wk	serum uric acid	50	LOAEL	Eisler, 2000	22.94
Asenic trioxide	rat	0.35	oral in diet (subchronic)	21 d	systemic	50	LOAEL	Eisler, 2000	22.94
Asenic trioxide	rat	0.35	single oral dose	96h	mortality	15.1	LD50 ^a	Eisler, 2000	6.93
Arsenite	rat	0.35	oral (subchronic)	23 d	growth	8	NOAEL	ATSDR, 2000	3.67
Arsenite	rat	0.35	oral (chronic)	2 yr	growth	4	LOAEL	ATSDR, 2000	1.84
Arsenate	rat	0.35	oral (chronic)	2 yr	growth	2	LOAEL	ATSDR, 2000	0.92
Arsenate	rat	0.35	oral (chronic)	27 months	growth	7	LOAEL	ATSDR, 2000	3.21
Arsenate	rat	0.35	oral (chronic)	27 months	growth	30	LOAEL	ATSDR, 2000	13.76
Arsenite	cotton rat	1.20	oral in water(intermediate)	6 wk	systemic, immune	5	LOAEL	Eisler, 2000	3.12

d - day

wk - week

gen - generations

UF - Uncertainty Factor

COPC - Chemical of Potential Concern

TRV - Reference Toxicity Value

NOAEL - No Observed Adverse Effect Level

LOAEL - Lowest Observed Adverse Effect Level

1 COPC or COPC and analyte/compound used in toxicological testing

2 Body weight for mouse and rat based on USEPA (1985b cited in Sample et al., 1996), other body weights are actual body weights of animals used in test

3 TRV s for studies in which dose was administered five times per week were multiplied for a factor of 0.7.

4 Documents cited are review documents (i.e., secondary sources). Citations for primary sources may be obtained from these documents.

5 The bold values were selected for use in calculating LOAEL HQ's

6 Test NOAELs and LOAELs were adjusted for wildlife species body weight using the following equation: NOAEL_{wildlife} = NOAEL_{test} * (BW_{test}/BW_{wildlife}) ^ 0.25 (Sample et al., 1996)

a An LD₅₀ was divided by 10 to obtain a LOAEL

TABLE 3
COMPARISON OF TOXICITY REFERENCE VALUES FOR HERON

INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV mg/kg - d ⁵	Test TRV Type	Source ⁷	Wildlife TRV (mg/kg-d) ⁸
Chromium									
Chromic potassium sulfate (Cr III)									
Chromic potassium sulfate (Cr III)	black duck	1.25	oral in diet (chronic)	10 months	reproductive	1.0	NOAEL	Sample et al., 1996	1.00
Chromic potassium sulfate (Cr III)	black duck	1.25	oral in diet (chronic)	10 months	reproductive	5.0	LOAEL	Sample et al., 1996	5.00
Chromium VI (form unknown)	chickens	1.50	oral in diet (subchronic)	32 d	growth	7.1	NOAEL	Eisler, 2000	7.07
Lead									
Lead acetate	Japanese quail	0.15	oral in diet (chronic)	12 wk	reproductive	1.1	NOAEL	Sample et al., 1996	1.13
Lead acetate	Japanese quail	0.15	oral in diet (chronic)	12 wk	reproductive	11.3	LOAEL	Sample et al., 1996	11.30
metallic	American kestrel	0.13	oral in diet (chronic)	7 months	reproductive	3.9	NOAEL	Sample et al., 1996	3.85
Lead nitrate	mallard	1.00	oral in diet (chronic)	12 wk	systemic, mortality	2.5	NOAEL	Eisler, 2000	2.50
Total lead, sediment	mallard	1.00	oral in diet (chronic)	15 wk	mortality	960.0	LOAEL	Eisler, 2000	960
Mercury									
Methyl mercury dicyandiamide	mallard	1.00	oral in diet (chronic)	3 gen	reproductive	0.064	LOAEL	Sample et al., 1996	0.06
methly mercury	mallard	1.00	oral in diet (chronic)	2 gen	reproductive	3.0	LOAEL	Eisler, 2000	3.00
Zinc									
Zinc sulfate	white leg-horn	1.94	oral in diet (chornic)	44 wk	reproductive	14.5	NOAEL	Sample, et al.,1996	14.50
Zinc sulfate	white leg-horn	1.94	oral in diet (chornic)	44 wk	reproductive	130.9	LOAEL	Sample, et al.,1996	130.90

gen - generations

UF - Uncertainty Factor

COPC - Chemical of Potential Concern

TRV - Reference Toxicity Value

NOAEL - No Observed Adverse Effect Level

LOAEL - Lowest Observed Adverse Effect Level

1 COPC or COPC and analyte/compound used in toxicological testing

2 Body weight for mouse and rat based on USEPA (1985b cited in Sample et al., 1996), other body weights are actual body weights of animals used in test

3 Lowest carcinogenic LOAEL from PAH toxicological data summarized in ATSDR, 1995b; test used benzo(a)pyrene. USEPA has classified benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, chrysene, and indeno(1,2,3-cd)pyrene as carcinogens (ATSDR, 1995b).

4 Lowest non-carcinogenic NOAEL from PAH toxicological data summarized in ATSDR (1995b); test used benzo(a)pyrene. USEPA has indicated that acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, phenanthrene and pyrene are not classifiable as carcinogens (ATSDR, 1995b). Carbazole and dibenzofuran were included in this group for the development of HQs.

5 TRV s for studies in which dose was administered five times per week were multiplied for a factor of 0.7.

6 LOAELs were divided by a UF of 10 to obtain NOAELs.

conversion and 10 for the LOAEL to NOAEL conversion)

7 Documents cited are review documents (i.e., secondary sources). Citations for primary sources may be obtained from these documents.

8 Test NOAELs from test species were not adjusted for body weight of mallard (Sample et al., 1996).

TABLE 4
COMPARISON OF TOXICITY REFERENCE VALUES FOR MALLARD

INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV mg/kg - d ⁵	Test TRV Type	Source ⁷	Wildlife TRV (mg/kg-d) ⁸
Aluminum									
No LOAEL TRV identified									
Antimony									
Antimony potassium tartrate	mouse	0.03	oral in water (chronic)	lifetime, >1 yr	lifespan	1.25	LOAEL	Sample et al., 1996	1.25
Arsenic									
Sodium arsenite	mallard	1.00	oral in diet (chronic)	128 d	mortality	5.14	NOAEL	Sample et al., 1996	5.14
Sodium arsenite	mallard	1.00	oral in diet (chronic)	128 d	mortality	12.84	LOAEL	Sample et al., 1996	12.84
Sodium arsenate	mallard	1.00	oral in diet (subchronic)	10 wk	growth	3	LOAEL	Camardese et al., 1990	3.00
Sodium arsenate	mallard	1.00	oral in diet (subchronic)	4 wk	growth	20	LOAEL	Eisler, 2000	20.00
Copper acetoarsentie	Brown-headed cowbird	0.05	oral in diet (chronic)	7 months	mortality	7.38	LOAEL	Sample et al., 1996	7.38
Chromium									
Chromic potassium sulfate (Cr III)	black duck	1.25	oral in diet (chronic)	10 months	reproductive	1.0	NOAEL	Sample et al., 1996	1.00
Chromic potassium sulfate (Cr III)	black duck	1.25	oral in diet (chronic)	10 months	reproductive	5.0	LOAEL	Sample et al., 1996	5.00
Chromium VI (form unknown)	chickens	1.50	oral in diet (subchronic)	32 d	growth	7.1	NOAEL	Eisler, 2000	7.07
Lead									
Lead acetate	Japanese quail	0.15	oral in diet (chronic)	12 wk	reproductive	1.1	NOAEL	Sample et al., 1996	1.13
Lead acetate	Japanese quail	0.15	oral in diet (chronic)	12 wk	reproductive	11.3	LOAEL	Sample et al., 1996	11.30
metallic	American kestrel	0.13	oral in diet (chronic)	7 months	reproductive	3.9	NOAEL	Sample et al., 1996	3.85
Lead nitrate	mallard	1.00	oral in diet (chronic)	12 wk	systemic, mortality	2.5	NOAEL	Eisler, 2000	2.50
Total lead, sediment	mallard	1.00	oral in diet (chronic)	15 wk	mortality	960.0	LOAEL	Eisler, 2000	960
Mercury									
Methyl mercury dicyandiamide	mallard	1.00	oral in diet (chronic)	3 gen	reproductive	0.064	LOAEL	Sample et al., 1996	0.06
methyl mercury	mallard	1.00	oral in diet (chronic)	2 gen	reproductive	3.0	LOAEL	Eisler, 2000	3.00
Zinc									
Zinc sulfate	white leg-horn	1.94	oral in diet (chronic)	44 wk	reproductive	14.5	NOAEL	Sample, et al., 1996	14.50
Zinc sulfate	white leg-horn	1.94	oral in diet (chronic)	44 wk	reproductive	130.9	LOAEL	Sample, et al., 1996	130.90

TABLE 4, Continued
COMPARISON OF TOXICITY REFERENCE VALUES FOR MALLARD

INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV mg/kg - d ⁵	Test TRV Type	Source ⁷	Wildlife TRV (mg/kg-d) ⁸
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d - day

wk - week

gen - generations

UF - Uncertainty Factor

COPC - Chemical of Potential Concern

TRV - Reference Toxicity Value

NOAEL - No Observed Adverse Effect Level

LOAEL - Lowest Observed Adverse Effect Level

1 COPC or COPC and analyte/compound used in toxicological testing

2 Body weight for mouse and rat based on USEPA (1985b cited in Sample et al., 1996), other body weights are actual body weights of animals used in test

3 Lowest carcinogenic LOAEL from PAH toxicological data summarized in ATSDR, 1995b; test used benzo(a)pyrene. USEPA has classified benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenz(a,h)anthracene, chrysene, and indeno(1,2,3-cd)pyrene as carcinogens (ATSDR, 1995b).

4 Lowest non-carcinogenic NOAEL from PAH toxicological data summarized in ATSDR (1995b); test used benzo(a)pyrene. USEPA has indicated that acenaphthylene, anthracene, benzo(g,h,i)perylene, fluoranthene, fluorene, phenanthrene and pyrene are not classifiable as carcinogens (ATSDR, 1995b). Carbazole and dibenzofuran were included in this group for the development of HQs.

5 TRV s for studies in which dose was administered five times per week were multiplied for a factor of 0.7.

6 LOAELs were divided by a UF of 10 to obtain NOAELs.
conversion and 10 for the LOAEL to NOAEL conversion)

7 Documents cited are review documents (i.e., secondary sources). Citations for primary sources may be obtained from these documents.

8 Test NOAELs from test species were not adjusted for body weight of mallard (Sample et al., 1996).

TABLE 5
COMPARISON OF TOXICITY REFERENCE VALUES FOR SHREW

INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV mg/kg - d ³	Test TRV Type	Source ⁴	Wildlife TRV (mg/kg-d) ^{5,6}
Antimony									
Antimony potassium tartrate	mouse	0.03	oral in water (chronic)	lifetime, >1 year	lifespan	1.25	LOAEL	Sample et al., 1996	1.49
Arsenic									
Arsenite	mouse	0.03	oral in water (chronic)	3 gen	reproductive	1.26	LOAEL	Sample et al., 1996	1.50
Arsenate	mouse	0.03	oral in water (chronic)	26 months	tumors	0.07	LOAEL	Eisler, 2000	0.08
Arsenite	mouse	0.03	oral (chronic)	2 yr	growth	1	LOAEL	Eisler, 2000	1.19
Arsenite	rat	0.35	oral in water (subchronic)	6 wk	serum uric acid	1.2	LOAEL	Eisler, 2000	2.64
Arsenate	rat	0.35	oral in diet (subchronic)	10 wk	serum uric acid	50	LOAEL	Eisler, 2000	109.89
Arsenic trioxide	rat	0.35	oral in diet (subchronic)	21 d	systemic	50	LOAEL	Eisler, 2000	109.89
Arsenic trioxide	rat	0.35	single oral dose	96h	mortality	15.1	LD50 ^a	Eisler, 2000	33.19
Arsenite	rat	0.35	oral (subchronic)	23 d	growth	8	NOAEL	ATSDR, 2000	17.58
Arsenite	rat	0.35	oral (chronic)	2 yr	growth	4	LOAEL	ATSDR, 2000	8.79
Arsenate	rat	0.35	oral (chronic)	2 yr	growth	2	LOAEL	ATSDR, 2000	4.40
Arsenate	rat	0.35	oral (chronic)	27 months	growth	7	LOAEL	ATSDR, 2000	15.38
Arsenate	rat	0.35	oral (chronic)	27 months	growth	30	LOAEL	ATSDR, 2000	65.93
Arsenite	cotton rat	1.20	oral in water(intermediate)	6 wk	systemic, immune	5	LOAEL	Eisler, 2000	14.95
Barium									
Barium chloride	rat	0.35	oral in water (chronic)	16 mo	growth	5.06	NOAEL	Sample, et al., 1996	11.12
Barium chloride	rat	0.35	oral in water (subchronic)	10 d	mortality	19.8	LOAEL	Sample, et al., 1996	43.52
Chromium									
Chromium oxide (Cr III)	rat	0.35	oral in food (subchronic)	90 d and 2 yr	reproductive	2737.00	NOAEL	Sample, 1996	6015.46
Chromium Chloride (Cr III)	rat	0.35	oral in food (subchronic)	20 weeks	systemic	9.00	NOAEL	ATSDR, 2000	19.76
Chromium Chloride (Cr III)	rat	0.35	oral in water (subchronic)	12 weeks	reproductive	40.00	LOAEL	ATSDR, 2000	87.91
Chromium Chloride (Cr III)	mouse	0.03	oral in water (subchronic)	12 weeks	reproductive	5.00	LOAEL	ATSDR, 2000	5.95
Chromium sulfate (Cr III)	mouse	0.03	oral in food (subchronic)	7 wk	reproductive	9.10	LOAEL	ATSDR, 2000	10.82
Potassium dichromate (Cr VI)	rat	0.35	oral in water (chronic)	1 yr		3.28	NOAEL	Sample, 1996	7.21
Potassium dichromate (Cr VI)	rat	0.35	oral in food (subchronic)	20 d	reproductive	37	LOAEL	ATSDR, 2000	81.32
Potassium dichromate (Cr VI)	rat	0.35	oral in food (subchronic)	3 months	reproductive	45	LOAEL	ATSDR, 2000	98.90
Potassium dichromate (Cr VI)	rat	0.35	oral in water (subchronic)	12 wk	reproductive	42	LOAEL	ATSDR, 2000	92.31
Potassium dichromate (Cr VI)	rat	0.35	oral in water (subchronic)	90 d	reproductive	20	LOAEL	ATSDR, 2000	43.96
Potassium dichromate (Cr VI)	mouse	0.03	oral in water (subchronic)	12 weeks	reproductive	6.00	LOAEL	ATSDR, 2000	7.14
Potassium dichromate (Cr VI)	mouse	0.03	oral in water (subchronic)	20 d	reproductive	52.00	LOAEL	ATSDR, 2000	61.84
Potassium dichromate (Cr VI)	mouse	0.03	oral in water (subchronic)	20 d	reproductive	60.00	LOAEL	ATSDR, 2000	71.35
Potassium dichromate (Cr VI)	mouse	0.03	oral in water (subchronic)	19 d	reproductive	46.00	LOAEL	ATSDR, 2000	54.70
Potassium dichromate (Cr VI)	mouse	0.03	oral in food (subchronic)	7 wk	reproductive	15.20	LOAEL	ATSDR, 2000	18.08
Cr VI (form unknown)	rat	0.35	oral in food (subchronic)	3 months	mortality	80.00	LOAEL	Eisler, 2000	175.83

TABLE 5, Continued
COMPARISON OF TOXICITY REFERENCE VALUES FOR SHREW

INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV mg/kg - d ³	Test TRV Type	Source ⁴	Wildlife TRV (mg/kg-d) ^{5,6}
Copper									
Copper sulfate	mink	1.0	oral in diet (chronic)	357 d	reproductive	11.7	NOAEL	Sample et al., 1996	33.43
Copper sulfate	mink	1.0	oral in diet (chronic)	357 d	reproductive	15.1	LOAEL	Sample et al., 1996	43.26
Copper acetate	rat	0.35	oral in diet (chronic)	60-73 d	reproductive	130.0	LOAEL	ATSDR, 2002	285.72
Copper gluconate	mouse	0.03	oral in water (chronic)	850 d	life span	4.2	LOAEL	ATSDR, 2002	4.99
Lead									
Lead acetate	rat	0.35	oral in diet (chronic)	3 gen	reproductive	8.0	NOAEL	Sample et al., 1996	17.58
Lead acetate	rat	0.35	oral in diet (chronic)	3 gen	reproductive	80.0	LOAEL	Sample et al., 1996	175.83
Lead (form unknown)	rat	0.35	oral in water (subchronic)	6-7 wk	reproductive	0.3	LOAEL	Eisler, 2000	0.73
Lead (form unknown)	rat	0.35	oral in diet (subchronic)	3 wk	mortality	200.0	LOAEL	Eisler, 2000	439.57
Lead (form unknown)	rat	0.35	oral in water (chronic)	life time	mortality	0.1	LOAEL	Eisler, 2000	0.15
Lead (form unknown)	rat	0.35	oral in diet (subchronic)	130 d	reproductive	52.6	LOAEL	Eisler, 2000	115.61
Lead acetate	rat	0.35	oral in water (subchronic)	14 - 50 d	reproductive	502.0	LOAEL	ATSDR, 1999	1103.31
Lead acetate	rat	0.35	oral in water (subchronic)	60 d	reproductive	90.0	LOAEL	ATSDR, 1999	197.80
Lead acetate	rat	0.35	oral in diet (subchronic)	30 d	reproductive	0.3	LOAEL	ATSDR, 1999	0.66
Lead acetate	mouse	0.03	oral in water (subchronic)	11 wk	reproductive	10.5	LOAEL	Eisler, 2000	12.49
Lead (form unknown)	mouse	0.03	oral in water (subchronic)	9 months	reproductive	13.1	NOAEL	Eisler, 2000	15.58
Lead acetate	mouse	0.03	oral in water (chronic)	multi-gen	mortality	605.0	NOAEL	ATSDR, 1999	719.47
Lead acetate	mouse	0.03	oral in water (subchronic)	12 wk	reproductive	141.0	NOAEL	ATSDR, 1999	167.68
Lead acetate	cotton rat	1.20	oral in water (subchronic)	7-13 wk	immune, systemic	0.1	LOAEL	Eisler, 2000	0.39
Manganese									
Manganese oxide	rat	0.35	oral in diet (chronic)	224 d	reproductive	88	NOAEL	Sample et al., 1996	193.41
Manganese oxide	rat	0.35	oral in diet (chronic)	224 d	reproductive	284	LOAEL	Sample et al., 1996	624.18
Manganous sulfate	rat	0.35	oral in diet (chronic)	2 yr	reproductive	201	NOAEL	ATSDR, 2002	441.76
Manganese chloride	rat	0.35	oral in water (subchronic)	20 d	reproductive	1240	LOAEL	ATSDR, 2002	2725.31
Manganese chloride	rat	0.35	oral in diet (subchronic)	0-21 d	reproductive	33	LOAEL	ATSDR, 2002	72.53
Mercury									
Methyl mercury chloride	rat	0.35	oral in diet (chronic)	3 gen	reproductive	0.032	NOAEL	Sample et al., 1996	0.07
Methyl mercury chloride	rat	0.35	oral in diet (chronic)	3 gen	reproductive	0.16	LOAEL	Sample et al., 1996	0.35
Mercuric sulfide	mouse	0.03	oral in diet (chronic)	20 months	reproductive, systemic	13.2	NOAEL	Sample et al., 1996	15.70
Mercuric chloride	mouse	1.0	oral in diet (chronic)	6 months	reproductive	1.0	NOAEL	Sample et al., 1996	2.86
Methyl mercury chloride	mink	1.0	oral in diet (subchronic)	93 d	mortality, growth	0.15	NOAEL	Sample et al., 1996	0.43
Methyl mercury chloride	mink	1.0	oral in diet (subchronic)	93 d	mortality, growth	0.25	LOAEL	Sample et al., 1996	0.71

TABLE 5, Continued
COMPARISON OF TOXICITY REFERENCE VALUES FOR SHREW

INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern ¹	Test Species	Body Weight (kg) ²	Exposure Route and Duration Class	Duration	System	Test TRV mg/kg - d ³	Test TRV Type	Source ⁴	Wildlife TRV (mg/kg-d) ^{5,6}
Selenium									
Selenate	rat	0.35	oral in water (chronic)	1 year	reproductive	0.2	NOAEL	Sample et al., 1996	0.44
Selenate	rat	0.35	oral in water (chronic)	1 year	reproductive	0.33	LOAEL	Sample et al., 1996	0.73
Selinite	rat	0.35	oral in diet (subchronic)	15 wk	reproductive	0.1	LOAEL	ASTDR, 2001	0.22
Selenate	rat	0.35	oral in water (subchronic)	13 wk	reproductive	0.3	LOAEL	ASTDR, 2001	0.66
Selinite	rat	0.35	oral in water(subchronic)	13 wk	reproductive	0.5	NOAEL	ASTDR, 2001	1.10
Selinite	rat	0.35	oral in water(subchronic)	13 wk	reproductive	0.2	LOAEL	ASTDR, 2001	0.44
Selinite	mouse	0.35	oral in water(subchronic)	48 d	reproductive	0.34	LOAEL	ASTDR, 2001	0.75
Selinite	mouse	0.35	oral in water(subchronic)	13 wk	reproductive	7.17	NOAEL	ASTDR, 2001	15.76
Thallium									
Thallium sulfate	rat	0.35	oral in water (subchronic)	60 d	reproduction	0.74	LOAEL	Sample et al, 1996.	1.63
Thallium acetate	rats	0.35		15 wk	renal	15	LOAEL	Downs, WL et al. 1960	32.97
Zinc									
Zinc oxide	rat	0.35	oral in diet (chronic)	16 d	reproduction	160	NOAEL	Sample et al., 1996	351.65
Zinc oxide	rat	0.35	oral in diet (chronic)	16 d	reproduction	320	LOAEL	Sample et al., 1996	703.31
Zinc chloride	rat	0.35	oral in diet (subchronic)	18 d	reproduction	200	LOAEL	ATSDR, 2003	439.57
Zinc chloride	mouse	0.03	oral in diet (subchronic)	42 d	reproduction	273	NOAEL	ATSDR, 2003	324.65

d - day

wk - week

gen - generations

UF - Uncertainty Factor

COPC - Chemical of Potential Concern

TRV - Reference Toxicity Value

NOAEL - No Observed Adverse Effect Level

LOAEL - Lowest Observed Adverse Effect Level

1 COPC or COPC and analyte/compound used in toxicological testing

2 Body weight for mouse and rat based on USEPA (1985b cited in Sample et al., 1996), other body weights are actual body weights of animals used in test

3 TRVs for studies in which dose was administered five times per week were multiplied for a factor of 0.7.

4 Documents cited are review documents (i.e., secondary sources). Citations for primary sources may be obtained from these documents.

5 The bold values were selected for use in calculating LOAEL HQ's

6 Test NOAELs and LOAELs were adjusted for wildlife species body weight using the following equation: $\text{NOAEL}_{\text{wildlife}} = \text{NOAEL}_{\text{test}} * (\text{BW}_{\text{test}}/\text{BW}_{\text{wildlife}})^{0.25}$ (Sample et al., 1996)

a An LD₅₀ was divided by 10 to obtain a LOAEL

APPENDIX 7C.14

WILDLIFE RECEPTORS - FOOD CHAIN MODELS - AVERAGE CASE

**Tables 1 to 27 - Hazard Quotient Summary Tables
Tables 28 to 54 - Calculation Tables**

TABLE 1
MAXIMUM HAZARD QUOTIENTS FOR MUSKRAT - STATION AR
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X	Aluminum	86	23	4	4.0	69.1	26.9
	Antimony	0.31	1.5	0.2	2.4	94.0	3.5
X	Arsenic	11	3.2	3	2.9	89.4	7.6
	Cadmium	0.19	7.8	<0.1	4.9	88.9	6.2
	Chromium	2.9	32	<0.1	7.8	68.2	24.1
	Cobalt	1.1	10	0.1	13.6	84.2	2.2
	Copper	9.6	16	0.6	4.3	85.9	9.7
	Lead	4.3	64	<0.1	3.2	87.8	9.0
	Selenium	0.39	0.27	1.5	1.9	94.3	3.7
	Vanadium	0.42	1.7	0.2	3.9	79.1	17.0
	Zinc	63	161	0.4	2.8	94.2	3.0
X	<i>HAZARD INDEX</i>			10			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based LOAELs

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 2
HAZARD QUOTIENTS FOR MUSKRAT - STATION BE-1
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/Sediment HQ	Percent Surface Water HQ
Inorganics							
x Aluminum	59	23	3	5.8	67.8	26.4	NA
Antimony	0.072	1.5	<0.1	10.3	86.5	3.2	NA
Arsenic	0.96	3.2	0.3	33.8	61.0	5.2	NA
Cadmium	0.076	7.8	<0.1	12.3	82.0	5.7	NA
Chromium	0.50	32	<0.1	44.9	40.8	14.4	NA
Cobalt	0.78	10	<0.1	19.2	78.7	2.1	NA
Copper	2.1	16	0.1	19.6	72.3	8.2	NA
Lead	3.0	64	<0.1	4.6	86.5	8.9	NA
Selenium	0.17	0.27	0.6	4.4	92.0	3.6	NA
Vanadium	0.41	1.7	0.2	4.0	79.1	16.9	NA
Zinc	33	161	0.2	5.3	91.7	3.0	NA
x HAZARD INDEX			4				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based LOAELs

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 3
HAZARD QUOTIENTS FOR MUSKRAT - STATION BE-2
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	101	23	4	3.4	69.5	27.1	NA
Antimony	0.17	1.5	0.1	4.4	92.1	3.4	NA
X Arsenic	6.8	3.2	2	4.7	87.8	7.5	NA
Cadmium	0.14	7.8	<0.1	6.9	87.1	6.1	NA
Chromium	0.76	32	<0.1	29.3	52.2	18.4	NA
Cobalt	1.9	10	0.2	7.7	90.0	2.4	NA
Copper	4.2	16	0.3	10.1	80.8	9.2	NA
Lead	4.4	64	<0.1	3.1	87.9	9.0	NA
Selenium	0.18	0.27	0.7	4.2	92.2	3.6	NA
Vanadium	0.78	1.7	0.5	2.1	80.6	17.3	NA
Zinc	98	161	0.6	1.8	95.2	3.1	NA
X HAZARD INDEX			9				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based LOAELs

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 4
HAZARD QUOTIENTS FOR MUSKRAT - STATION BE-3
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	88	23	4	3.9	69.2	26.9	NA
Antimony	0.10	1.5	<0.1	7.1	89.5	3.4	NA
Arsenic	3.0	3.2	0.9	11.0	82.0	7.0	NA
Cadmium	0.12	7.8	<0.1	7.7	86.3	6.0	NA
Chromium	0.63	32	<0.1	35.2	47.9	16.9	NA
Cobalt	1.7	10	0.2	8.6	89.1	2.3	NA
Copper	2.4	16	0.1	17.7	73.9	8.4	NA
Lead	4.2	64	<0.1	3.3	87.7	9.0	NA
Selenium	0.12	0.27	0.4	6.3	90.2	3.5	NA
Vanadium	0.56	1.7	0.3	2.9	80.0	17.1	NA
Zinc	48	161	0.3	3.7	93.3	3.0	NA
X HAZARD INDEX			6				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based LOAELs

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 5
HAZARD QUOTIENTS FOR MUSKRAT - STATION HB01
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	42	23	2	21.1	44.8	34.1	0.0
Antimony	0.15	1.5	<0.1	5.1	86.4	8.2	0.2
X Arsenic	12	3.2	4	6.4	89.7	3.9	0.0
Cadmium	0.17	7.8	<0.1	10.1	74.6	15.2	0.0
Chromium	1.8	32	<0.1	26.3	45.7	28.0	0.0
Cobalt	2.7	10	0.3	5.5	93.3	1.2	0.0
Copper	7.4	16	0.5	8.8	67.7	23.5	0.0
Lead	2.4	64	<0.1	16.1	59.1	24.8	0.0
Selenium	0.14	0.27	0.5	5.4	91.0	3.5	0.1
Vanadium	0.20	1.7	0.1	14.8	62.4	22.7	0.1
Zinc	36	161	0.2	13.4	70.0	16.6	0.1
X HAZARD INDEX			7				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based LOAELs

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 6
HAZARD QUOTIENTS FOR MUSKRAT - STATION HB02-1
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	103	23	4	0.6	75.2	24.2	0.0
Antimony	0.17	1.5	0.1	4.4	89.9	5.6	0.1
X Arsenic	18	3.2	5	1.0	90.3	8.7	0.0
Cadmium	0.40	7.8	<0.1	1.9	83.8	14.3	0.0
Chromium	3.6	32	0.1	1.2	76.0	22.8	0.0
Cobalt	4.4	10	0.4	3.4	93.5	3.1	0.0
Copper	7.4	16	0.5	2.0	80.4	17.5	0.0
Lead	3.5	64	<0.1	0.4	83.0	16.6	0.0
Selenium	0.15	0.27	0.6	4.9	91.2	3.8	0.1
Vanadium	0.48	1.7	0.3	1.6	78.4	20.0	0.0
Zinc	153	161	1	0.7	90.8	8.5	0.0
X HAZARD INDEX			13				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based LOAELs

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 7
HAZARD QUOTIENTS FOR MUSKRAT - STATION HB03-1
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	75	23	3	0.9	76.2	22.9	0.0
Antimony	0.15	1.5	0.1	4.9	91.4	3.5	0.1
X Arsenic	13	3.2	4	1.5	92.3	6.2	0.0
Cadmium	0.26	7.8	<0.1	2.8	90.7	6.5	0.0
Chromium	2.7	32	<0.1	2.0	78.3	19.7	0.0
Cobalt	3.6	10	0.4	4.2	93.9	1.9	0.0
Copper	5.5	16	0.3	5.5	83.8	10.7	0.0
Lead	2.1	64	<0.1	1.0	90.2	8.8	0.0
Selenium	0.14	0.27	0.5	5.2	92.0	2.7	0.1
Vanadium	0.35	1.7	0.2	2.1	84.1	13.7	0.0
Zinc	89	161	0.6	1.0	94.0	5.0	0.0
X HAZARD INDEX			9				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based LOAELs

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 8
HAZARD QUOTIENTS FOR MUSKRAT - STATION HB03-2
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	57	23	2	1.7	53.6	44.7	0.0
Antimony	0.14	1.5	<0.1	5.3	88.6	5.9	0.2
X Arsenic	8.9	3.2	3	1.4	86.0	12.6	0.0
Cadmium	0.17	7.8	<0.1	4.4	74.6	21.0	0.0
Chromium	2.1	32	<0.1	3.1	57.8	39.0	0.0
Cobalt	2.7	10	0.3	5.5	92.0	2.6	0.0
Copper	4.6	16	0.3	3.3	71.3	25.4	0.0
Lead	1.5	64	<0.1	2.2	64.0	33.7	0.0
Selenium	0.14	0.27	0.5	5.3	89.2	5.4	0.1
Vanadium	0.30	1.7	0.2	2.5	69.9	27.6	0.0
Zinc	32	161	0.2	2.4	70.9	26.7	0.0
X HAZARD INDEX			7				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based LOAELs

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 9
HAZARD QUOTIENTS FOR MUSKRAT - STATION MC-09
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X Aluminum	81	23	4	0.7	48.8	50.5	0.0
Antimony	0.15	1.5	0.1	4.9	83.2	11.3	0.6
X Arsenic	9.1	3.2	3	2.7	76.7	20.6	0.1
Cadmium	0.24	7.8	<0.1	3.2	67.3	29.5	0.0
Chromium	3.2	32	<0.1	1.6	51.0	47.4	0.0
Cobalt	2.8	10	0.3	5.3	88.5	6.2	0.0
Copper	6.4	16	0.4	9.3	50.1	40.6	0.0
Lead	1.9	64	<0.1	0.8	50.9	48.3	0.0
Selenium	0.15	0.27	0.6	5.1	86.0	8.8	0.0
Vanadium	0.36	1.7	0.2	2.1	60.3	37.5	0.2
Zinc	48	161	0.3	1.7	62.3	36.0	0.0
X HAZARD INDEX			8				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based LOAELs

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 10
HAZARD QUOTIENTS FOR MUSKRAT - STATION MC-13
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
X	Aluminum	100	23	4	6.0	51.6	42.5
	Antimony	0.15	1.5	0.1	4.9	90.2	4.3
X	Arsenic	13	3.2	4	2.3	91.3	6.3
	Cadmium	0.24	7.8	<0.1	3.1	91.8	5.1
	Chromium	4.6	32	0.1	10.3	41.5	48.2
	Cobalt	3.4	10	0.3	4.4	94.2	1.5
	Copper	6.3	16	0.4	8.5	73.4	18.0
	Lead	3.6	64	<0.1	6.7	51.3	42.0
	Selenium	0.14	0.27	0.5	5.2	91.4	3.4
	Vanadium	0.45	1.7	0.3	6.4	59.8	33.6
	Zinc	79	161	0.5	1.7	94.7	3.5
X	<i>HAZARD INDEX</i>		11				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based LOAELs

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 11
HAZARD QUOTIENTS FOR MUSKRAT - REFERENCE
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
x Aluminum	73	23	3	2.3	72.9	24.8	0.0
Antimony	0.14	1.5	<0.1	5.5	92.8	1.4	0.3
Arsenic	0.90	3.2	0.3	1.7	94.5	3.8	0.0
Cadmium	0.14	7.8	<0.1	5.5	92.7	1.7	0.0
Chromium	0.95	32	<0.1	5.0	76.8	18.2	0.0
Cobalt	2.7	10	0.3	5.6	93.8	0.6	0.0
Copper	2.8	16	0.2	5.4	90.6	4.0	0.0
Lead	2.1	64	<0.1	3.6	75.5	20.9	0.0
Selenium	0.14	0.27	0.5	5.5	93.0	1.4	0.1
Vanadium	0.59	1.7	0.4	2.4	84.8	12.8	0.0
Zinc	7.0	161	<0.1	6.4	88.6	5.0	0.0
x HAZARD INDEX			5				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based LOAELs

X = Indicates a COPC with a HQ > 1.

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 12
HAZARD QUOTIENTS FOR RIVER OTTER - SITEWIDE
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Invertebrate HQ	Percent Fish HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
Arsenic <i>HAZARD INDEX</i>	0.49	1.8	0.3 0.3	38.2	10.2	50.9	0.7

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on LOAEL

X = Indicates a COPC with a HQ > 1

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 13
HAZARD QUOTIENTS FOR RIVER OTTER - REFERENCE
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Invertebrate HQ	Percent Fish HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics							
Arsenic <i>HAZARD INDEX</i>	0.023	1.8	<0.1 0.0	39.9	33.3	26.2	0.5

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on LOAEL

X = Indicates a COPC with a HQ > 1

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

TABLE 14
HAZARD QUOTIENTS FOR HERON - SITEWIDE
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Invertebrate HQ	Percent Fish HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Inorganics							
Chromium	0.48	5.0	<0.1	80.7	4.4	14.9	0.0
Lead	0.32	11	<0.1	76.4	6.7	16.8	0.0
Mercury	0.0051	0.064	<0.1	51.6	42.2	6.2	0.0
Zinc	4.9	131	<0.1	62.5	20.3	17.0	0.2
<i>HAZARD INDEX</i>			0.2				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based LOAELs

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 15
HAZARD QUOTIENTS FOR HERON - REFERENCE
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Invertebrate HQ	Percent Fish HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Inorganics							
Chromium	0.12	5.0	<0.1	68.6	17.5	13.7	0.1
Lead	0.19	11	<0.1	67.2	11.0	21.6	0.2
Mercury	0.0059	0.064	<0.1	44.5	54.7	0.8	0.1
Zinc	1.8	131	<0.1	42.6	55.5	1.8	0.0
<i>HAZARD INDEX</i>			0.1				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based LOAELs

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 16
HAZARD QUOTIENTS FOR MALLARD - SITEWIDE
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Inorganics							
Aluminum	26	NA	NA	NA	NA	NA	NA
Antimony	0.045	1.3	<0.1	45.5	45.6	8.7	0.2
Arsenic	2.9	13	0.2	30.0	57.7	12.3	0.0
Chromium	1.2	5.0	0.2	52.5	24.7	22.7	0.0
Lead	0.85	11	<0.1	44.2	32.1	23.6	0.0
Mercury	0.0090	0.064	0.1	45.5	41.7	12.8	0.0
Zinc	19	131	0.1	25.6	59.4	15.0	0.0
<i>HAZARD INDEX</i>			<i>I</i>				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on LOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 17
HAZARD QUOTIENTS FOR MALLARD - HBHA POND
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Inorganics							
Aluminum	33	NA	NA	NA	NA	NA	NA
Antimony	0.044	1.3	<0.1	46.4	42.5	10.9	0.2
Arsenic	3.9	13	0.3	53.9	41.3	4.9	0.0
Chromium	1.6	5.0	0.3	79.9	7.5	12.5	0.0
Lead	1.5	11	0.1	70.2	14.0	15.8	0.0
Mercury	0.0048	0.064	<0.1	NA	77.3	22.7	0.0
Zinc	19	131	0.1	68.1	19.4	12.5	0.0
<i>HAZARD INDEX</i>			<i>I</i>				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on LOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 18
HAZARD QUOTIENTS FOR MALLARD - HBHA WETLAND
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Inorganics							
Aluminum	20	NA	NA	NA	NA	NA	NA
Antimony	0.045	1.3	<0.1	45.1	45.8	8.7	0.4
Arsenic	2.7	13	0.2	18.3	62.9	18.7	0.0
Chromium	0.77	5.0	0.2	18.6	40.5	40.9	0.0
Lead	0.54	11	<0.1	10.6	53.1	36.3	0.0
Mercury	0.0091	0.064	0.1	44.7	41.0	14.3	0.0
Zinc	19	131	0.1	12.7	65.6	21.7	0.0
<i>HAZARD INDEX</i>			0.7				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on LOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 19
HAZARD QUOTIENTS FOR MALLARD - REFERENCE
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Plant HQ	Percent Surface Sediment HQ	Percent Surface Water HQ
Inorganics							
Aluminum	20	NA	NA	NA	NA	NA	NA
Antimony	0.040	1.3	<0.1	50.9	46.6	1.9	0.6
Arsenic	0.18	13	<0.1	23.0	69.4	7.6	0.0
Chromium	0.31	5.0	<0.1	42.3	35.1	22.5	0.0
Lead	0.61	11	<0.1	33.3	38.1	28.5	0.0
Mercury	0.0080	0.064	0.1	51.0	46.7	2.3	0.0
Zinc	2.3	131	<0.1	53.6	40.3	6.1	0.0
<i>HAZARD INDEX</i>			0.3				

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on LOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects-level

COPC = Chemical of potential concern

NA = Not applicable

TABLE 20
HAZARD QUOTIENTS FOR SHREW - STATION A6
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
X Antimony	0.32	1.5	0.2	54.8	45.2	NA
X Arsenic	3.8	1.5	3	10.1	89.9	NA
Barium	3.0	44	<0.1	46.6	53.4	NA
Chromium	5.4	88	<0.1	4.4	95.6	NA
Copper	3.4	43	<0.1	19.7	80.3	NA
Lead	23	176	0.1	33.1	66.9	NA
Manganese	1.9	624	<0.1	19.0	81.0	NA
Mercury	0.059	0.35	0.2	29.4	70.6	NA
Selenium	0.087	0.73	0.1	63.6	36.4	NA
Thallium	0.38	1.6	0.2	54.8	45.2	NA
Zinc	22	440	<0.1	80.4	19.6	NA
X HAZARD INDEX			4			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on LOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 21
HAZARD QUOTIENTS FOR SHREW - STATION BE-1
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
Antimony	0.027	1.5	<0.1	54.8	45.2	NA
Arsenic	0.33	1.5	0.2	19.2	80.8	NA
Barium	1.2	44	<0.1	46.6	53.4	NA
Chromium	0.66	88	<0.1	43.0	57.0	NA
Copper	1.4	43	<0.1	35.1	64.9	NA
Lead	2.5	176	<0.1	43.9	56.1	NA
Manganese	2.5	624	<0.1	17.5	82.5	NA
Mercury	0.013	0.35	<0.1	88.4	11.6	NA
Selenium	0.088	0.73	0.1	63.5	36.5	NA
Thallium	0.027	1.6	<0.1	54.8	45.2	NA
Zinc	24	440	<0.1	78.3	21.7	NA
<i>HAZARD INDEX</i>						
			0.6			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on LOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 22
HAZARD QUOTIENTS FOR SHREW - STATION BE-2
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
X Antimony	0.068	1.5	<0.1	54.8	45.2	NA
X Arsenic	3.0	1.5	2	10.7	89.3	NA
Barium	1.2	44	<0.1	46.6	53.4	NA
Chromium	1.0	88	<0.1	26.9	73.1	NA
Copper	2.6	43	<0.1	23.4	76.6	NA
Lead	3.6	176	<0.1	42.0	58.0	NA
Manganese	5.3	624	<0.1	14.1	85.9	NA
Mercury	0.015	0.35	<0.1	82.0	18.0	NA
Selenium	0.092	0.73	0.1	63.2	36.8	NA
Thallium	0.044	1.6	<0.1	54.8	45.2	NA
Zinc	43	440	<0.1	62.8	37.2	NA
X HAZARD INDEX			2			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on LOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 23
HAZARD QUOTIENTS FOR SHREW - STATION BE-4
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
Antimony	0.041	1.5	<0.1	54.8	45.2	NA
Arsenic	0.89	1.5	0.6	14.9	85.1	NA
Barium	0.70	44	<0.1	46.6	53.4	NA
Chromium	1.6	88	<0.1	16.8	83.2	NA
Copper	1.1	43	<0.1	40.3	59.7	NA
Lead	4.5	176	<0.1	40.9	59.1	NA
Manganese	5.2	624	<0.1	14.2	85.8	NA
Mercury	0.014	0.35	<0.1	85.7	14.3	NA
Selenium	0.13	0.73	0.2	60.7	39.3	NA
Thallium	0.032	1.6	<0.1	54.8	45.2	NA
Zinc	22	440	<0.1	80.4	19.6	NA
<i>HAZARD INDEX</i>			<i>I</i>			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on LOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 24
HAZARD QUOTIENTS FOR SHREW - STATION HB02-2
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
Antimony	0.19	1.5	0.1	54.6	45.1	0.3
X Arsenic	9.0	1.5	6	7.9	92.0	0.1
Barium	2.6	44	<0.1	46.4	53.3	0.3
Chromium	3.4	88	<0.1	7.2	92.7	0.0
Copper	5.1	43	0.1	14.8	85.2	0.0
Lead	5.1	176	<0.1	40.2	59.7	0.0
Manganese	13	624	<0.1	10.8	88.4	0.8
Mercury	0.022	0.35	<0.1	64.2	35.8	0.1
Selenium	0.19	0.73	0.3	57.6	42.2	0.2
Thallium	0.28	1.6	0.2	54.7	45.2	0.1
Zinc	57	440	0.1	55.0	44.9	0.1
X HAZARD INDEX			7			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on LOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 25
HAZARD QUOTIENTS FOR SHREW - STATION HB03-3
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
X Antimony	0.14	1.5	<0.1	54.6	45.1	0.3
X Arsenic	3.2	1.5	2	10.5	89.3	0.2
Barium	2.1	44	<0.1	46.4	53.2	0.3
Chromium	2.2	88	<0.1	11.8	88.2	0.0
Copper	3.8	43	<0.1	18.1	81.9	0.0
Lead	3.8	176	<0.1	41.7	58.2	0.0
Manganese	11	624	<0.1	11.5	87.5	1.0
Mercury	0.021	0.35	<0.1	66.0	33.9	0.1
Selenium	0.11	0.73	0.2	61.6	38.1	0.3
Thallium	0.073	1.6	<0.1	54.5	45.0	0.5
Zinc	41	440	<0.1	63.7	36.2	0.1
X HAZARD INDEX			3			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on LOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 26
HAZARD QUOTIENTS FOR SHREW - STATION HB04
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
Antimony	0.019	1.5	<0.1	53.4	44.1	2.6
Arsenic	0.35	1.5	0.2	18.7	79.6	1.7
Barium	0.30	44	<0.1	45.4	52.1	2.4
Chromium	0.60	88	<0.1	47.8	52.1	0.2
Copper	0.74	43	<0.1	52.3	47.5	0.2
Lead	0.52	176	<0.1	52.1	47.8	0.1
Manganese	1.3	624	<0.1	19.6	72.0	8.4
Mercury	0.014	0.35	<0.1	86.1	13.8	0.1
Selenium	0.025	0.73	<0.1	71.6	27.0	1.4
Thallium	0.016	1.6	<0.1	53.5	44.2	2.4
Zinc	10	440	<0.1	93.2	6.5	0.3
<i>HAZARD INDEX</i>						
			0.4			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on LOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects level

COPC = Chemical of potential concern

NA = Not Applicable

TABLE 27
HAZARD QUOTIENTS FOR SHREW - REFERENCE
AVERAGE CASE
INDUSTRI-PLEX SUPERFUND SITE

Chemical of Potential Concern	Total Dose (mg/kg-day)	TRV (mg/kg-day)	Total HQ	Percent Animal HQ	Percent Soil/ Sediment HQ	Percent Surface Water HQ
Inorganics						
Antimony	0.021	1.5	<0.1	54.4	45.0	0.6
Arsenic	0.32	1.5	0.2	19.3	80.4	0.2
Barium	1.1	44	<0.1	46.2	53.0	0.9
Chromium	1.9	88	<0.1	13.9	86.1	0.0
Copper	1.2	43	<0.1	39.8	60.2	0.1
Lead	6.7	176	<0.1	38.8	61.1	0.0
Manganese	2.1	624	<0.1	17.5	77.1	5.4
Mercury	0.016	0.35	<0.1	78.9	20.9	0.2
Selenium	0.032	0.73	<0.1	70.3	29.0	0.6
Thallium	0.013	1.6	<0.1	54.1	44.7	1.3
Zinc	15	440	<0.1	87.5	12.5	0.0
HAZARD INDEX						
			0.5			

NOTES:

HQ = Hazard quotient

TRV = Toxicity Reference Value based on LOAEL

X = Indicates a COPC with a HQ > 1

0.0 = Indicates COPC was not detected in medium, or that the detected concentration was low, contributing less than 0.05% of the Total HQ.

Total Dose = Sum of exposure from ingestion of food (plant and animal), sediment, and water.

LOAEL = Lowest-observed-adverse-effects level

TABLE 28. AVERAGE EXPOSURE CALCULATIONS FOR MUSKRAT - STATION AR

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	AR	AR	Sitewide	Sed*UF ¹	LOAEL															
Inorganics																				
X Aluminum	9860	62	114	118	23	3.41E+00	5.93E+01	6.27E+01	2.31E+01	6.22E-03	8.58E+01	1E-01	3E+00	1E+00	3E-04	4E+00	4.0%	69.1%	26.9%	0.0%
X Antimony	4.6	1.0	0.25	0.58	1.5	7.46E-03	2.91E-01	2.98E-01	1.09E-02	1.04E-04	3.09E-01	5E-03	2E-01	7E-03	7E-05	2E-01	2.4%	94.0%	3.5%	0.0%
X Arsenic	364	17	11	20	3.2	3.24E-01	9.97E+00	1.03E+01	8.52E-01	1.73E-03	1.11E+01	1E-01	3E+00	3E-01	5E-04	3E+00	2.9%	89.4%	7.6%	0.0%
Cadmium	5.0	0.18	0.31	0.34	7.8	9.37E-03	1.70E-01	1.79E-01	1.18E-02	1.78E-05	1.91E-01	1E-03	2E-02	2E-03	2E-06	2E-02	4.9%	88.9%	6.2%	0.0%
Chromium	295	1.9	7.5	3.9	32	2.23E-01	1.96E+00	2.18E+00	6.91E-01	1.96E-04	2.87E+00	7E-03	6E-02	2E-02	6E-06	9E-02	7.8%	68.2%	24.1%	0.0%
Cobalt	10	0.45	5.0	1.8	10	1.49E-01	9.23E-01	1.07E+00	2.42E-02	4.57E-05	1.10E+00	1E-02	9E-02	2E-03	5E-06	1E-01	13.6%	84.2%	2.2%	0.0%
Copper	400	3.7	14	16	16	4.18E-01	8.27E+00	8.69E+00	9.38E-01	3.74E-04	9.63E+00	3E-02	5E-01	6E-02	2E-05	6E-01	4.3%	85.9%	9.7%	0.0%
Lead	164	1.5	4.6	7.4	64	1.38E-01	3.74E+00	3.88E+00	3.83E-01	1.51E-04	4.26E+00	2E-03	6E-02	6E-03	2E-06	7E-02	3.2%	87.8%	9.0%	0.0%
Selenium	6.1	1.4	0.25	0.73	0.27	7.46E-03	3.67E-01	3.74E-01	1.44E-02	1.37E-04	3.89E-01	3E-02	1E+00	5E-02	5E-04	1E+00	1.9%	94.3%	3.7%	0.0%
Vanadium	30	0.43	0.54	0.66	1.7	1.62E-02	3.30E-01	3.46E-01	7.07E-02	4.38E-05	4.17E-01	1E-02	2E-01	4E-02	3E-05	2E-01	3.9%	79.1%	17.0%	0.0%
Zinc	811	36	59	117	161	1.76E+00	5.90E+01	6.08E+01	1.90E+00	3.61E-03	6.27E+01	1E-02	4E-01	1E-02	2E-05	4E-01	2.8%	94.2%	3.0%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

1 Plant tissue concentration was not measured at this station. Concentration is estimated from concentration in the sediment multiplied by an uptake factor (UF).

TABLE 29. AVERAGE EXPOSURE CALCULATIONS FOR MUSKRAT - STATION BE-1

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Animal (mg/Kg)	C_Plant (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (a+p) BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water	
Datasource:	BE-1	No SW	Sitewide	Sed*UF ¹	LOAEL															
Inorganics																				
X Aluminum	6675	NA	114	80	23	3.41E+00	4.01E+01	4.36E+01	1.56E+01	NA	5.92E+01	1E-01	2E+00	7E-01	NA	3E+00	5.8%	67.8%	26.4%	NA
Antimony	1.0	NA	0.25	0.12	1.5	7.46E-03	6.26E-02	7.01E-02	2.34E-03	NA	7.24E-02	5E-03	4E-02	2E-03	NA	5E-02	10.3%	86.5%	3.2%	NA
Arsenic	21	NA	11	1.2	3.2	3.24E-01	5.84E-01	9.08E-01	4.99E-02	NA	9.57E-01	1E-01	2E-01	2E-02	NA	3E-01	33.8%	61.0%	5.2%	NA
Cadmium	1.9	NA	0.31	0.12	7.8	9.37E-03	6.24E-02	7.17E-02	4.33E-03	NA	7.61E-02	1E-03	8E-03	6E-04	NA	1E-02	12.3%	82.0%	5.7%	NA
Chromium	31	NA	7.5	0.40	32	2.23E-01	2.02E-01	4.25E-01	7.15E-02	NA	4.96E-01	7E-03	6E-03	2E-03	NA	2E-02	44.9%	40.8%	14.4%	NA
Cobalt	6.9	NA	5.0	1.2	10	1.49E-01	6.11E-01	7.60E-01	1.60E-02	NA	7.77E-01	1E-02	6E-02	2E-03	NA	8E-02	19.2%	78.7%	2.1%	NA
Copper	75	NA	14	3.1	16	4.18E-01	1.54E+00	1.96E+00	1.75E-01	NA	2.14E+00	3E-02	1E-01	1E-02	NA	1E-01	19.6%	72.3%	8.2%	NA
Lead	113	NA	4.6	5.1	64	1.38E-01	2.59E+00	2.73E+00	2.65E-01	NA	2.99E+00	2E-03	4E-02	4E-03	NA	5E-02	4.6%	86.5%	8.9%	NA
Selenium	2.6	NA	0.25	0.31	0.27	7.46E-03	1.55E-01	1.63E-01	6.09E-03	NA	1.69E-01	3E-02	6E-01	2E-02	NA	6E-01	4.4%	92.0%	3.6%	NA
Vanadium	30	NA	0.54	0.64	1.7	1.62E-02	3.24E-01	3.41E-01	6.95E-02	NA	4.10E-01	1E-02	2E-01	4E-02	NA	2E-01	4.0%	79.1%	16.9%	NA
Zinc	415	NA	59	60	161	1.76E+00	3.02E+01	3.19E+01	9.71E-01	NA	3.29E+01	1E-02	2E-01	6E-03	NA	2E-01	5.3%	91.7%	3.0%	NA

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

1 Plant tissue concentration was not measured at this station. Concentration is estimated from concentration in the sediment multiplied by an uptake factor (UF).

TABLE 30. AVERAGE EXPOSURE CALCULATIONS FOR MUSKRAT - STATION BE-2

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Animal (mg/Kg)	C_Plant (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	BE-2	No SW	Sitewide	Sed*UF ¹	LOAEL															
Inorganics																				
X Aluminum	11723	NA	114	140	23	3.41E+00	7.05E+01	7.39E+01	2.75E+01	NA	1.01E+02	1E-01	3E+00	1E+00	NA	4E+00	3.4%	69.5%	27.1%	NA
X Antimony	2.5	NA	0.25	0.31	1.5	7.46E-03	1.55E-01	1.62E-01	5.80E-03	NA	1.68E-01	5E-03	1E-01	4E-03	NA	1E-01	4.4%	92.1%	3.4%	NA
X Arsenic	219	NA	11	12	3.2	3.24E-01	6.00E+00	6.32E+00	5.13E-01	NA	6.83E+00	1E-01	2E+00	2E-01	NA	2E+00	4.7%	87.8%	7.5%	NA
Cadmium	3.5	NA	0.31	0.24	7.8	9.37E-03	1.19E-01	1.28E-01	8.26E-03	NA	1.36E-01	1E-03	2E-02	1E-03	NA	2E-02	6.9%	87.1%	6.1%	NA
Chromium	60	NA	7.5	0.79	32	2.23E-01	3.96E-01	6.19E-01	1.40E-01	NA	7.59E-01	7E-03	1E-02	4E-03	NA	2E-02	29.3%	52.2%	18.4%	NA
Cobalt	20	NA	5.0	3.5	10	1.49E-01	1.75E+00	1.90E+00	4.59E-02	NA	1.94E+00	1E-02	2E-01	5E-03	NA	2E-01	7.7%	90.0%	2.4%	NA
Copper	162	NA	14	6.7	16	4.18E-01	3.35E+00	3.77E+00	3.80E-01	NA	4.15E+00	3E-02	2E-01	2E-02	NA	3E-01	10.1%	80.8%	9.2%	NA
Lead	169	NA	4.6	7.7	64	1.38E-01	3.87E+00	4.01E+00	3.96E-01	NA	4.40E+00	2E-03	6E-02	6E-03	NA	7E-02	3.1%	87.9%	9.0%	NA
Selenium	2.7	NA	0.25	0.32	0.27	7.46E-03	1.63E-01	1.70E-01	6.38E-03	NA	1.77E-01	3E-02	6E-01	2E-02	NA	7E-01	4.2%	92.2%	3.6%	NA
Vanadium	57	NA	0.54	1.2	1.7	1.62E-02	6.26E-01	6.42E-01	1.34E-01	NA	7.76E-01	1E-02	4E-01	8E-02	NA	5E-01	2.1%	80.6%	17.3%	NA
Zinc	1288	NA	59	186	161	1.76E+00	9.37E+01	9.55E+01	3.02E+00	NA	9.85E+01	1E-02	6E-01	2E-02	NA	6E-01	1.8%	95.2%	3.1%	NA

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

1 Plant tissue concentration was not measured at this station. Concentration is estimated from concentration in the sediment multiplied by an uptake factor (UF).

TABLE 31. AVERAGE EXPOSURE CALCULATIONS FOR MUSKRAT - STATION BE-3

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Animal (mg/Kg)	C_Plant (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (a+p) BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water	
Datasource:	BE-3	No SW	Sitewide	Sed*UF ¹	LOAEL															
Inorganics																				
X Aluminum	10100	NA	114	121	23	3.41E+00	6.07E+01	6.42E+01	2.37E+01	NA	8.78E+01	1E-01	3E+00	1E+00	NA	4E+00	3.9%	69.2%	26.9%	NA
Antimony	1.5	NA	0.25	0.19	1.5	7.46E-03	9.39E-02	1.01E-01	3.51E-03	NA	1.05E-01	5E-03	6E-02	2E-03	NA	7E-02	7.1%	89.5%	3.4%	NA
Arsenic	88	NA	11	4.8	3.2	3.24E-01	2.42E+00	2.74E+00	2.07E-01	NA	2.95E+00	1E-01	8E-01	6E-02	NA	9E-01	11.0%	82.0%	7.0%	NA
Cadmium	3.1	NA	0.31	0.21	7.8	9.37E-03	1.04E-01	1.14E-01	7.26E-03	NA	1.21E-01	1E-03	1E-02	9E-04	NA	2E-02	7.7%	86.3%	6.0%	NA
Chromium	46	NA	7.5	0.60	32	2.23E-01	3.03E-01	5.26E-01	1.07E-01	NA	6.33E-01	7E-03	9E-03	3E-03	NA	2E-02	35.2%	47.9%	16.9%	NA
Cobalt	17	NA	5.0	3.1	10	1.49E-01	1.55E+00	1.70E+00	4.08E-02	NA	1.74E+00	1E-02	2E-01	4E-03	NA	2E-01	8.6%	89.1%	2.3%	NA
Copper	84	NA	14	3.5	16	4.18E-01	1.74E+00	2.16E+00	1.98E-01	NA	2.36E+00	3E-02	1E-01	1E-02	NA	1E-01	17.7%	73.9%	8.4%	NA
Lead	162	NA	4.6	7.4	64	1.38E-01	3.71E+00	3.85E+00	3.80E-01	NA	4.22E+00	2E-03	6E-02	6E-03	NA	7E-02	3.3%	87.7%	9.0%	NA
Selenium	1.8	NA	0.25	0.21	0.27	7.46E-03	1.08E-01	1.15E-01	4.22E-03	NA	1.19E-01	3E-02	4E-01	2E-02	NA	4E-01	6.3%	90.2%	3.5%	NA
Vanadium	41	NA	0.54	0.88	1.7	1.62E-02	4.44E-01	4.60E-01	9.51E-02	NA	5.56E-01	1E-02	3E-01	6E-02	NA	3E-01	2.9%	80.0%	17.1%	NA
Zinc	609	NA	59	88	161	1.76E+00	4.43E+01	4.61E+01	1.43E+00	NA	4.75E+01	1E-02	3E-01	9E-03	NA	3E-01	3.7%	93.3%	3.0%	NA

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

1 Plant tissue concentration was not measured at this station. Concentration is estimated from concentration in the sediment multiplied by an uptake factor (UF).

TABLE 32. AVERAGE EXPOSURE CALCULATIONS FOR MUSKRAT - STATION HB01

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	HB01	HB01	MC-06	MC-06	LOAEL															
Inorganics																				
X Aluminum	6184	61	300	38	23	8.95E+00	1.90E+01	2.79E+01	1.45E+01	6.17E-03	4.24E+01	4E-01	8E-01	6E-01	3E-04	2E+00	21.1%	44.8%	34.1%	0.0%
X Antimony	5.1	3.0	0.25	0.25	1.5	7.46E-03	1.26E-01	1.33E-01	1.20E-02	3.00E-04	1.46E-01	5E-03	8E-02	8E-03	2E-04	1E-01	5.1%	86.4%	8.2%	0.2%
X Arsenic	203	28	26	22	3.2	7.76E-01	1.09E+01	1.17E+01	4.77E-01	2.78E-03	1.22E+01	2E-01	3E+00	1E-01	9E-04	4E+00	6.4%	89.7%	3.9%	0.0%
Cadmium	11	0.55	0.57	0.25	7.8	1.70E-02	1.26E-01	1.43E-01	2.57E-02	5.52E-05	1.69E-01	2E-03	2E-02	3E-03	7E-06	2E-02	10.1%	74.6%	15.2%	0.0%
Chromium	217	2.7	16	1.7	32	4.78E-01	8.30E-01	1.31E+00	5.09E-01	2.69E-04	1.82E+00	1E-02	3E-02	2E-02	8E-06	6E-02	26.3%	45.7%	28.0%	0.0%
Cobalt	14	1.7	5.0	5.0	10	1.49E-01	2.52E+00	2.67E+00	3.21E-02	1.70E-04	2.70E+00	1E-02	3E-01	3E-03	2E-05	3E-01	5.5%	93.3%	1.2%	0.0%
Copper	745	7.5	22	10	16	6.57E-01	5.03E+00	5.69E+00	1.74E+00	7.54E-04	7.43E+00	4E-02	3E-01	1E-01	5E-05	5E-01	8.8%	67.7%	23.5%	0.0%
Lead	254	1.8	13	2.8	64	3.88E-01	1.42E+00	1.81E+00	5.95E-01	1.86E-04	2.40E+00	6E-03	2E-02	9E-03	3E-06	4E-02	16.1%	59.1%	24.8%	0.0%
Selenium	2.1	1.6	0.25	0.25	0.27	7.46E-03	1.26E-01	1.33E-01	4.87E-03	1.63E-04	1.38E-01	3E-02	5E-01	2E-02	6E-04	5E-01	5.4%	91.0%	3.5%	0.1%
Vanadium	20	1.3	1.0	0.25	1.7	2.98E-02	1.26E-01	1.56E-01	4.57E-02	1.28E-04	2.01E-01	2E-02	7E-02	3E-02	8E-05	1E-01	14.8%	62.4%	22.7%	0.1%
Zinc	2534	208	160	50	161	4.78E+00	2.50E+01	2.98E+01	5.94E+00	2.11E-02	3.58E+01	3E-02	2E-01	4E-02	1E-04	2E-01	13.4%	70.0%	16.6%	0.1%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 33. AVERAGE EXPOSURE CALCULATIONS FOR MUSKRAT - STATION HB02-1

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Animal (mg/Kg)	C_Plant (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	HB02-1	HB02-1	MC-08	MC-08	LOAEL															
Inorganics																				
X Aluminum	10615	101	21	154	23	6.27E-01	7.74E+01	7.80E+01	2.49E+01	1.02E-02	1.03E+02	3E-02	3E+00	1E+00	4E-04	4E+00	0.6%	75.2%	24.2%	0.0%
X Antimony	4.1	2.2	0.25	0.31	1.5	7.46E-03	1.53E-01	1.61E-01	9.49E-03	2.20E-04	1.71E-01	5E-03	1E-01	6E-03	1E-04	1E-01	4.4%	89.9%	5.6%	0.1%
X Arsenic	651	26	5.8	32	3.2	1.73E-01	1.59E+01	1.61E+01	1.53E+00	2.64E-03	1.76E+01	5E-02	5E+00	5E-01	8E-04	5E+00	1.0%	90.3%	8.7%	0.0%
Cadmium	24	0.24	0.25	0.66	7.8	7.46E-03	3.31E-01	3.39E-01	5.66E-02	2.40E-05	3.95E-01	1E-03	4E-02	7E-03	3E-06	5E-02	1.9%	83.8%	14.3%	0.0%
Chromium	351	4.5	1.4	5.5	32	4.18E-02	2.74E+00	2.78E+00	8.22E-01	4.56E-04	3.61E+00	1E-03	9E-02	3E-02	1E-05	1E-01	1.2%	76.0%	22.8%	0.0%
Cobalt	59	1.1	5.0	8.3	10	1.49E-01	4.15E+00	4.30E+00	1.39E-01	1.13E-04	4.44E+00	1E-02	4E-01	1E-02	1E-05	4E-01	3.4%	93.5%	3.1%	0.0%
Copper	551	7.4	5.0	12	16	1.49E-01	5.91E+00	6.06E+00	1.29E+00	7.48E-04	7.35E+00	9E-03	4E-01	8E-02	5E-05	5E-01	2.0%	80.4%	17.5%	0.0%
Lead	246	2.8	0.50	5.7	64	1.49E-02	2.88E+00	2.90E+00	5.76E-01	2.86E-04	3.47E+00	2E-04	4E-02	9E-03	4E-06	5E-02	0.4%	83.0%	16.6%	0.0%
Selenium	2.5	1.5	0.25	0.28	0.27	7.46E-03	1.40E-01	1.47E-01	5.84E-03	1.54E-04	1.53E-01	3E-02	5E-01	2E-02	6E-04	6E-01	4.9%	91.2%	3.8%	0.1%
Vanadium	41	1.2	0.25	0.74	1.7	7.46E-03	3.73E-01	3.81E-01	9.53E-02	1.26E-04	4.76E-01	4E-03	2E-01	6E-02	7E-05	3E-01	1.6%	78.4%	20.0%	0.0%
Zinc	5569	138	35	277	161	1.04E+00	1.39E+02	1.40E+02	1.30E+01	1.40E-02	1.53E+02	6E-03	9E-01	8E-02	9E-05	1E+00	0.7%	90.8%	8.5%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 34. AVERAGE EXPOSURE CALCULATIONS FOR MUSKRAT - STATION HB03-1

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Animal (mg/Kg)	C_Plant (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	HB03-1	HB03-1	HBHA W	HBHA W	LOAEL															
Inorganics																				
X Aluminum	7296	101	24	113	23	7.06E-01	5.69E+01	5.76E+01	1.71E+01	1.02E-02	7.47E+01	3E-02	2E+00	7E-01	4E-04	3E+00	0.9%	76.2%	22.9%	0.0%
X Antimony	2.3	2.2	0.25	0.28	1.5	7.46E-03	1.40E-01	1.47E-01	5.39E-03	2.20E-04	1.53E-01	5E-03	9E-02	4E-03	1E-04	1E-01	4.9%	91.4%	3.5%	0.1%
X Arsenic	334	26	6.1	23	3.2	1.83E-01	1.16E+01	1.17E+01	7.83E-01	2.64E-03	1.25E+01	6E-02	4E+00	2E-01	8E-04	4E+00	1.5%	92.3%	6.2%	0.0%
Cadmium	7.3	0.24	0.25	0.48	7.8	7.46E-03	2.39E-01	2.47E-01	1.71E-02	2.40E-05	2.64E-01	1E-03	3E-02	2E-03	3E-06	3E-02	2.8%	90.7%	6.5%	0.0%
Chromium	227	4.5	1.8	4.2	32	5.27E-02	2.11E+00	2.16E+00	5.32E-01	4.56E-04	2.70E+00	2E-03	7E-02	2E-02	1E-05	8E-02	2.0%	78.3%	19.7%	0.0%
Cobalt	29	1.1	5.0	6.6	10	1.49E-01	3.33E+00	3.48E+00	6.82E-02	1.13E-04	3.55E+00	1E-02	3E-01	7E-03	1E-05	4E-01	4.2%	93.9%	1.9%	0.0%
Copper	250	7.4	10	9.1	16	2.98E-01	4.57E+00	4.87E+00	5.85E-01	7.48E-04	5.45E+00	2E-02	3E-01	4E-02	5E-05	3E-01	5.5%	83.8%	10.7%	0.0%
Lead	80	2.8	0.70	3.8	64	2.09E-02	1.92E+00	1.95E+00	1.87E-01	2.86E-04	2.13E+00	3E-04	3E-02	3E-03	4E-06	3E-02	1.0%	90.2%	8.8%	0.0%
Selenium	1.7	1.5	0.25	0.26	0.27	7.46E-03	1.33E-01	1.40E-01	3.89E-03	1.54E-04	1.44E-01	3E-02	5E-01	1E-02	6E-04	5E-01	5.2%	92.0%	2.7%	0.1%
Vanadium	20	1.2	0.25	0.58	1.7	7.46E-03	2.94E-01	3.01E-01	4.79E-02	1.26E-04	3.49E-01	4E-03	2E-01	3E-02	7E-05	2E-01	2.1%	84.1%	13.7%	0.0%
Zinc	1891	138	29	166	161	8.76E-01	8.35E+01	8.44E+01	4.43E+00	1.40E-02	8.88E+01	5E-03	5E-01	3E-02	9E-05	6E-01	1.0%	94.0%	5.0%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 35. AVERAGE EXPOSURE CALCULATIONS FOR MUSKRAT - STATION HB03-2

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Animal (mg/Kg)	C_Plant (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	HB03-2	HB03-2	MC-11	MC-11	LOAEL															
Inorganics																				
X Aluminum	10780	101	32	60	23	9.55E-01	3.03E+01	3.13E+01	2.53E+01	1.02E-02	5.65E+01	4E-02	1E+00	1E+00	4E-04	2E+00	1.7%	53.6%	44.7%	0.0%
X Antimony	3.6	2.2	0.25	0.25	1.5	7.46E-03	1.26E-01	1.33E-01	8.43E-03	2.20E-04	1.42E-01	5E-03	8E-02	6E-03	1E-04	1E-01	5.3%	88.6%	5.9%	0.2%
X Arsenic	476	26	4.3	15	3.2	1.28E-01	7.63E+00	7.76E+00	1.11E+00	2.64E-03	8.88E+00	4E-02	2E+00	3E-01	8E-04	3E+00	1.4%	86.0%	12.6%	0.0%
Cadmium	15	0.24	0.25	0.25	7.8	7.46E-03	1.26E-01	1.33E-01	3.53E-02	2.40E-05	1.69E-01	1E-03	2E-02	5E-03	3E-06	2E-02	4.4%	74.6%	21.0%	0.0%
Chromium	348	4.5	2.2	2.4	32	6.57E-02	1.21E+00	1.27E+00	8.15E-01	4.56E-04	2.09E+00	2E-03	4E-02	3E-02	1E-05	6E-02	3.1%	57.8%	39.0%	0.0%
Cobalt	30	1.1	5.0	5.0	10	1.49E-01	2.52E+00	2.67E+00	7.04E-02	1.13E-04	2.74E+00	1E-02	3E-01	7E-03	1E-05	3E-01	5.5%	92.0%	2.6%	0.0%
Copper	497	7.4	5.0	6.5	16	1.49E-01	3.27E+00	3.42E+00	1.17E+00	7.48E-04	4.59E+00	9E-03	2E-01	7E-02	5E-05	3E-01	3.3%	71.3%	25.4%	0.0%
Lead	212	2.8	1.1	1.9	64	3.28E-02	9.43E-01	9.76E-01	4.97E-01	2.86E-04	1.47E+00	5E-04	1E-02	8E-03	4E-06	2E-02	2.2%	64.0%	33.7%	0.0%
Selenium	3.3	1.5	0.25	0.25	0.27	7.46E-03	1.26E-01	1.33E-01	7.61E-03	1.54E-04	1.41E-01	3E-02	5E-01	3E-02	6E-04	5E-01	5.3%	89.2%	5.4%	0.1%
Vanadium	36	1.2	0.25	0.42	1.7	7.46E-03	2.11E-01	2.19E-01	8.33E-02	1.26E-04	3.02E-01	4E-03	1E-01	5E-02	7E-05	2E-01	2.5%	69.9%	27.6%	0.0%
Zinc	3667	138	26	45	161	7.76E-01	2.28E+01	2.36E+01	8.59E+00	1.40E-02	3.22E+01	5E-03	1E-01	5E-02	9E-05	2E-01	2.4%	70.9%	26.7%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 36. AVERAGE EXPOSURE CALCULATIONS FOR MUSKRAT - STATION MC-09

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	MC-09	MC-09	MC-09	MC-09	LOAEL															
Inorganics																				
X Aluminum	17500	200	18	79	23	5.37E-01	3.96E+01	4.01E+01	4.10E+01	2.02E-02	8.11E+01	2E-02	2E+00	2E+00	9E-04	4E+00	0.7%	48.8%	50.5%	0.0%
X Antimony	7.3	9.2	0.25	0.25	1.5	7.46E-03	1.26E-01	1.33E-01	1.71E-02	9.24E-04	1.51E-01	5E-03	8E-02	1E-02	6E-04	1E-01	4.9%	83.2%	11.3%	0.6%
X Arsenic	802	50	8.3	14	3.2	2.48E-01	7.00E+00	7.25E+00	1.88E+00	5.06E-03	9.14E+00	8E-02	2E+00	6E-01	2E-03	3E+00	2.7%	76.7%	20.6%	0.1%
Cadmium	30	0.39	0.25	0.32	7.8	7.46E-03	1.58E-01	1.66E-01	6.96E-02	3.94E-05	2.36E-01	1E-03	2E-02	9E-03	5E-06	3E-02	3.2%	67.3%	29.5%	0.0%
Chromium	641	10	1.7	3.2	32	5.07E-02	1.62E+00	1.67E+00	1.50E+00	1.01E-03	3.17E+00	2E-03	5E-02	5E-02	3E-05	1E-01	1.6%	51.0%	47.4%	0.0%
Cobalt	75	1.5	5.0	5.0	10	1.49E-01	2.52E+00	2.67E+00	1.76E-01	1.52E-04	2.84E+00	1E-02	3E-01	2E-02	2E-05	3E-01	5.3%	88.5%	6.2%	0.0%
Copper	1110	12	20	6.4	16	5.97E-01	3.21E+00	3.80E+00	2.60E+00	1.20E-03	6.41E+00	4E-02	2E-01	2E-01	8E-05	4E-01	9.3%	50.1%	40.6%	0.0%
Lead	397	4.6	0.50	2.0	64	1.49E-02	9.81E-01	9.96E-01	9.30E-01	4.65E-04	1.93E+00	2E-04	2E-02	1E-02	7E-06	3E-02	0.8%	50.9%	48.3%	0.0%
Selenium	5.5	0.55	0.25	0.25	0.27	7.46E-03	1.26E-01	1.33E-01	1.29E-02	5.56E-05	1.46E-01	3E-02	5E-01	5E-02	2E-04	6E-01	5.1%	86.0%	8.8%	0.0%
Vanadium	57	5.9	0.25	0.43	1.7	7.46E-03	2.15E-01	2.23E-01	1.34E-01	5.96E-04	3.57E-01	4E-03	1E-01	8E-02	4E-04	2E-01	2.1%	60.3%	37.5%	0.2%
Zinc	7420	192	27	60	161	8.06E-01	3.01E+01	3.09E+01	1.74E+01	1.94E-02	4.83E+01	5E-03	2E-01	1E-01	1E-04	3E-01	1.7%	62.3%	36.0%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 37. AVERAGE EXPOSURE CALCULATIONS FOR MUSKRAT - STATION MC-13

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	MC-13	MC-13	MC-13	Sitewide	LOAEL															
Inorganics																				
X Aluminum	18100	62	200	102	23	5.97E+00	5.15E+01	5.75E+01	4.24E+01	6.28E-03	9.99E+01	3E-01	2E+00	2E+00	3E-04	4E+00	6.0%	51.6%	42.5%	0.0%
X Antimony	2.8	9.2	0.25	0.27	1.5	7.46E-03	1.38E-01	1.45E-01	6.56E-03	9.24E-04	1.53E-01	5E-03	9E-02	4E-03	6E-04	1E-01	4.9%	90.2%	4.3%	0.6%
X Arsenic	339	27	9.8	23	3.2	2.93E-01	1.15E+01	1.18E+01	7.94E-01	2.70E-03	1.26E+01	9E-02	4E+00	2E-01	8E-04	4E+00	2.3%	91.3%	6.3%	0.0%
Cadmium	5.3	0.39	0.25	0.44	7.8	7.46E-03	2.23E-01	2.31E-01	1.24E-02	3.94E-05	2.43E-01	1E-03	3E-02	2E-03	5E-06	3E-02	3.1%	91.8%	5.1%	0.0%
Chromium	956	11	16	3.8	32	4.78E-01	1.93E+00	2.41E+00	2.24E+00	1.07E-03	4.65E+00	1E-02	6E-02	7E-02	3E-05	1E-01	10.3%	41.5%	48.2%	0.0%
Cobalt	21	1.5	5.0	6.4	10	1.49E-01	3.22E+00	3.37E+00	5.01E-02	1.52E-04	3.42E+00	1E-02	3E-01	5E-03	2E-05	3E-01	4.4%	94.2%	1.5%	0.0%
Copper	486	2.8	18	9.2	16	5.37E-01	4.64E+00	5.17E+00	1.14E+00	2.83E-04	6.31E+00	3E-02	3E-01	7E-02	2E-05	4E-01	8.5%	73.4%	18.0%	0.0%
Lead	647	1.4	8.1	3.7	64	2.42E-01	1.85E+00	2.09E+00	1.52E+00	1.41E-04	3.61E+00	4E-03	3E-02	2E-02	2E-06	6E-02	6.7%	51.3%	42.0%	0.0%
Selenium	2.1	0.55	0.25	0.26	0.27	7.46E-03	1.32E-01	1.39E-01	4.92E-03	5.56E-05	1.44E-01	3E-02	5E-01	2E-02	2E-04	5E-01	5.2%	91.4%	3.4%	0.0%
Vanadium	65	5.4	0.97	0.54	1.7	2.90E-02	2.70E-01	2.98E-01	1.51E-01	5.45E-04	4.50E-01	2E-02	2E-01	9E-02	3E-04	3E-01	6.4%	59.8%	33.6%	0.1%
Zinc	1200	39	46	149	161	1.37E+00	7.51E+01	7.65E+01	2.81E+00	3.89E-03	7.93E+01	9E-03	5E-01	2E-02	2E-05	5E-01	1.7%	94.7%	3.5%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 38. AVERAGE EXPOSURE CALCULATIONS FOR MUSKRAT - REFERENCE

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	Ref	Ref	Ref	Ref	LOAEL															
Inorganics																				
X Aluminum	7696	351	56	105	23	1.66E+00	5.30E+01	5.47E+01	1.80E+01	3.55E-02	7.28E+01	7E-02	2E+00	8E-01	2E-03	3E+00	2.3%	72.9%	24.8%	0.0%
Antimony	0.80	4.4	0.25	0.25	1.5	7.46E-03	1.26E-01	1.33E-01	1.88E-03	4.42E-04	1.36E-01	5E-03	8E-02	1E-03	3E-04	9E-02	5.5%	92.8%	1.4%	0.3%
Arsenic	15	3.1	0.52	1.7	3.2	1.54E-02	8.55E-01	8.70E-01	3.43E-02	3.13E-04	9.05E-01	5E-03	3E-01	1E-02	1E-04	3E-01	1.7%	94.5%	3.8%	0.0%
Cadmium	1.0	0.22	0.25	0.25	7.8	7.46E-03	1.26E-01	1.33E-01	2.36E-03	2.17E-05	1.36E-01	1E-03	2E-02	3E-04	3E-06	2E-02	5.5%	92.7%	1.7%	0.0%
Chromium	74	2.2	1.6	1.5	32	4.78E-02	7.30E-01	7.77E-01	1.73E-01	2.24E-04	9.50E-01	1E-03	2E-02	5E-03	7E-06	3E-02	5.0%	76.8%	18.2%	0.0%
Cobalt	7.4	1.4	5.0	5.0	10	1.49E-01	2.52E+00	2.67E+00	1.72E-02	1.44E-04	2.68E+00	1E-02	3E-01	2E-03	1E-05	3E-01	5.6%	93.8%	0.6%	0.0%
Copper	48	2.9	5.0	5.0	16	1.49E-01	2.52E+00	2.67E+00	1.12E-01	2.89E-04	2.78E+00	9E-03	2E-01	7E-03	2E-05	2E-01	5.4%	90.6%	4.0%	0.0%
Lead	185	7.8	2.5	3.1	64	7.46E-02	1.57E+00	1.65E+00	4.34E-01	7.88E-04	2.08E+00	1E-03	2E-02	7E-03	1E-05	3E-02	3.6%	75.5%	20.9%	0.0%
Selenium	0.83	0.87	0.25	0.25	0.27	7.46E-03	1.26E-01	1.33E-01	1.96E-03	8.75E-05	1.35E-01	3E-02	5E-01	7E-03	3E-04	5E-01	5.5%	93.0%	1.4%	0.1%
Vanadium	32	2.2	0.47	1.0	1.7	1.40E-02	5.04E-01	5.18E-01	7.61E-02	2.20E-04	5.94E-01	8E-03	3E-01	5E-02	1E-04	4E-01	2.4%	84.8%	12.8%	0.0%
Zinc	148	14	15	12	161	4.48E-01	6.20E+00	6.65E+00	3.47E-01	1.37E-03	7.00E+00	3E-03	4E-02	2E-03	9E-06	4E-02	6.4%	88.6%	5.0%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 39. AVERAGE EXPOSURE CALCULATIONS FOR OTTER - SITEWIDE

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Invertebrate} (mg/Kg)	C _{fish} (mg/Kg)	TRV mg/Kg day	DOSE invertebrate (mg/Kg BW day)	DOSE fish (mg/Kg BW day)	DOSE food (i+f) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ invertebrate	HQ fish	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ invertebrate	% HQ fish	% HQ soil/ sediment	% HQ water	
Inorganics Arsenic	Datasource: Sitewide	502	44	9.4	0.63	1.8	1.88E-01	5.01E-02	2.38E-01	2.51E-01	3.53E-03	4.93E-01	1E-01	3E-02	1E-01	2E-03	3E-01	38.2%	10.2%	50.9%	0.7%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 40. AVERAGE EXPOSURE CALCULATIONS FOR OTTER - REFERENCE

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Invertebrate} (mg/Kg)	C _{fish} (mg/Kg)	TRV mg/Kg day	DOSE invertebrate (mg/Kg BW day)	DOSE fish (i+f) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ invertebrate	HQ fish	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ invertebrate	% HQ fish	% HQ soil/ sediment	% HQ water	
Inorganics Arsenic	Datasource: Reference	Reference	Reference	Reference	LOAEL	9.20E-03	7.68E-03	1.69E-02	6.04E-03	1.20E-04	2.30E-02	5E-03	4E-03	3E-03	7E-05	1E-02	39.9%	33.3%	26.2%	0.5%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 41. AVERAGE EXPOSURE CALCULATIONS FOR HERON - SITEWIDE

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Invertebrate (mg/Kg)	C_Fish (mg/Kg)	TRV mg/Kg day	DOSE invertebrate (mg/Kg BW day)	DOSE fish (mg/Kg BW day)	DOSE prey (i+f) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ invertebrate	HQ fish	HQ sediment	HQ water	TOTAL HQ	% HQ invertebrate	% HQ fish	% HQ soil/ sediment	% HQ water
Datasource:	Sitewide	Sitewide	Sitewide	Sitewide	LOAEL															
Inorganics																				
Chromium	316	3.8	7.5	0.50	5.0	3.90E-01	2.14E-02	4.11E-01	7.18E-02	1.84E-04	4.83E-01	8E-02	4E-03	1E-02	4E-05	1E-01	80.7%	4.4%	14.9%	0.0%
Lead	235	2.3	4.6	0.50	11	2.42E-01	2.14E-02	2.64E-01	5.33E-02	1.15E-04	3.17E-01	2E-02	2E-03	5E-03	1E-05	3E-02	76.4%	6.7%	16.8%	0.0%
Mercury	1.4	0.049	0.050	0.050	0.064	2.61E-03	2.14E-03	4.75E-03	3.14E-04	2.40E-06	5.07E-03	4E-02	3E-02	5E-03	4E-05	8E-02	51.6%	42.2%	6.2%	0.0%
Zinc	3692	170	59	23	131	3.07E+00	1.00E+00	4.07E+00	8.38E-01	8.31E-03	4.92E+00	2E-02	8E-03	6E-03	6E-05	4E-02	62.5%	20.3%	17.0%	0.2%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 42. AVERAGE EXPOSURE CALCULATIONS FOR HERON - REFERENCE

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Invertebrate} (mg/Kg)	C _{Fish} (mg/Kg)	TRV mg/Kg day	DOSE invertebrate (mg/Kg BW day)	DOSE fish (mg/Kg BW day)	DOSE prey (i+f) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ invertebrate	HQ fish	HQ sediment	HQ water	TOTAL HQ	% HQ invertebrate	% HQ fish	% HQ soil/ sediment	% HQ water
Datasource:	Reference	Reference	Reference	Reference	LOAEL															
Inorganics																				
Chromium	74	2.2	1.6	0.50	5.0	8.36E-02	2.14E-02	1.05E-01	1.67E-02	1.09E-04	1.22E-01	2E-02	4E-03	3E-03	2E-05	2E-02	68.6%	17.5%	13.7%	0.1%
Lead	185	7.8	2.5	0.50	11	1.31E-01	2.14E-02	1.52E-01	4.21E-02	3.82E-04	1.94E-01	1E-02	2E-03	4E-03	3E-05	2E-02	67.2%	11.0%	21.6%	0.2%
Mercury	0.20	0.066	0.050	0.075	0.064	2.61E-03	3.21E-03	5.82E-03	4.47E-05	3.24E-06	5.87E-03	4E-02	5E-02	7E-04	5E-05	9E-02	44.5%	54.7%	0.8%	0.1%
Zinc	148	14	15	24	131	7.84E-01	1.02E+00	1.81E+00	3.36E-02	6.67E-04	1.84E+00	6E-03	8E-03	3E-04	5E-06	1E-02	42.6%	55.5%	1.8%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 43. AVERAGE EXPOSURE CALCULATIONS FOR MALLARD - HBHA WETLAND

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water	
Datasource:	HBHA Wetland	HBHA Wetland	HBHA Wetland	HBHA Wetland	LOAEL															
Inorganics																				
Aluminum	10236	101	24	113	NA	1.93E+00	8.44E+00	1.04E+01	9.63E+00	2.94E-03	2.00E+01	NA	NA	NA	NA	NA	NA	NA		
Antimony	4.2	5.6	0.25	0.28	1.3	2.04E-02	2.07E-02	4.11E-02	3.95E-03	1.64E-04	4.52E-02	2E-02	2E-02	3E-03	1E-04	4E-02	45.1%	45.8%	8.7%	0.4%
Arsenic	543	26	6.1	23	13	4.99E-01	1.71E+00	2.21E+00	5.11E-01	7.58E-04	2.72E+00	4E-02	1E-01	4E-02	6E-05	2E-01	18.3%	62.9%	18.7%	0.0%
Chromium	336	4.5	1.8	4.2	5.0	1.44E-01	3.13E-01	4.57E-01	3.16E-01	1.31E-04	7.73E-01	3E-02	6E-02	6E-02	3E-05	2E-01	18.6%	40.5%	40.9%	0.0%
Lead	208	2.8	0.70	3.8	11	5.70E-02	2.85E-01	3.42E-01	1.95E-01	8.21E-05	5.38E-01	5E-03	3E-02	2E-02	7E-06	5E-02	10.6%	53.1%	36.3%	0.0%
Mercury	1.4	0.051	0.050	0.050	0.064	4.07E-03	3.73E-03	7.80E-03	1.30E-03	1.49E-06	9.10E-03	6E-02	6E-02	2E-02	2E-05	1E-01	44.7%	41.0%	14.3%	0.0%
Zinc	4354	138	29	166	131	2.39E+00	1.24E+01	1.48E+01	4.09E+00	4.01E-03	1.89E+01	2E-02	9E-02	3E-02	3E-05	1E-01	12.7%	65.6%	21.7%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

NA = Not Applicable

TABLE 44. AVERAGE EXPOSURE CALCULATIONS FOR MALLARD - HBHA POND

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	Total water (mg/Kg BW day)	Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	HBHA Pond	HBHA Pond	HBHA Pond	HBHA Pond	LOAEL															
Inorganics																				
Aluminum	6184	61	300	38	NA	2.44E+01	2.81E+00	2.72E+01	5.82E+00	1.77E-03	3.31E+01	NA	NA	NA	NA	NA	NA	NA	NA	
Antimony	5.1	3.4	0.25	0.25	1.3	2.04E-02	1.86E-02	3.90E-02	4.80E-03	9.96E-05	4.39E-02	2E-02	1E-02	4E-03	8E-05	4E-02	46.4%	42.5%	10.9%	0.2%
Arsenic	203	28	26	22	13	2.12E+00	1.62E+00	3.74E+00	1.91E-01	7.99E-04	3.93E+00	2E-01	1E-01	1E-02	6E-05	3E-01	53.9%	41.3%	4.9%	0.0%
Chromium	217	2.7	16	1.7	5.0	1.30E+00	1.23E-01	1.43E+00	2.04E-01	7.72E-05	1.63E+00	3E-01	2E-02	4E-02	2E-05	3E-01	79.9%	7.5%	12.5%	0.0%
Lead	254	1.8	13	2.8	11	1.06E+00	2.11E-01	1.27E+00	2.39E-01	5.35E-05	1.51E+00	9E-02	2E-02	2E-02	5E-06	1E-01	70.2%	14.0%	15.8%	0.0%
Mercury	1.2	0.047	NA	0.050	0.064	NA	3.73E-03	3.73E-03	1.10E-03	1.37E-06	4.83E-03	NA	6E-02	2E-02	2E-05	8E-02	NA	77.3%	22.7%	0.0%
Zinc	2534	208	160	50	131	1.30E+01	3.71E+00	1.67E+01	2.38E+00	6.04E-03	1.91E+01	1E-01	3E-02	2E-02	5E-05	1E-01	68.1%	19.4%	12.5%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

NA = Not Applicable

TABLE 45. AVERAGE EXPOSURE CALCULATIONS FOR MALLARD - SITEWIDE

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	Total water (mg/Kg BW day)	HQ animal	HQ plant	HQ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water	
Datasource:	Sitewide	Sitewide	Sitewide	Sitewide	LOAEL															
Inorganics																				
Aluminum	9382	77	114	102	NA	9.30E+00	7.63E+00	1.69E+01	8.82E+00	2.23E-03	2.58E+01	NA	NA	NA	NA	NA	NA	NA		
Antimony	4.1	2.6	0.25	0.27	1.3	2.04E-02	2.04E-02	4.08E-02	3.89E-03	7.63E-05	4.47E-02	2E-02	2E-02	3E-03	6E-05	4E-02	45.5%	45.6%	8.7%	0.2%
Arsenic	386	25	11	23	13	8.83E-01	1.70E+00	2.58E+00	3.63E-01	7.11E-04	2.95E+00	7E-02	1E-01	3E-02	6E-05	2E-01	30.0%	57.7%	12.3%	0.0%
Chromium	280	3.3	7.5	3.8	5.0	6.07E-01	2.86E-01	8.93E-01	2.63E-01	9.64E-05	1.16E+00	1E-01	6E-02	5E-02	2E-05	2E-01	52.5%	24.7%	22.7%	0.0%
Lead	215	2.1	4.6	3.7	11	3.78E-01	2.75E-01	6.52E-01	2.02E-01	6.20E-05	8.55E-01	3E-02	2E-02	2E-02	5E-06	8E-02	44.2%	32.1%	23.6%	0.0%
Mercury	1.2	0.050	0.050	0.050	0.064	4.07E-03	3.73E-03	7.80E-03	1.15E-03	1.44E-06	8.95E-03	6E-02	6E-02	2E-02	2E-05	1E-01	45.5%	41.7%	12.8%	0.0%
Zinc	2980	138	59	149	131	4.79E+00	1.11E+01	1.59E+01	2.80E+00	4.00E-03	1.87E+01	4E-02	9E-02	2E-02	3E-05	1E-01	25.6%	59.4%	15.0%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

NA = Not Applicable

TABLE 46. AVERAGE EXPOSURE CALCULATIONS FOR MALLARD - REFERENCE

Compound	C _{Sediment} (mg/Kg)	C _{Water} (ug/L)	C _{Animal} (mg/Kg)	C _{Plant} (mg/Kg)	TRV mg/Kg day	DOSE animal (mg/Kg BW day)	DOSE plant (mg/Kg BW day)	DOSE food (a+p) (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ animal	HQ plant	HQ sediment	HQ water	TOTAL HQ	% HQ animal	% HQ plant	% HQ soil/ sediment	% HQ water
Datasource:	Reference	Reference	Reference	Reference	LOAEL															
Inorganics																				
Aluminum	7696	351	56	105	NA	4.52E+00	7.86E+00	1.24E+01	7.24E+00	1.02E-02	1.96E+01	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	0.80	8.9	0.25	0.25	1.3	2.04E-02	1.86E-02	3.90E-02	7.56E-04	2.59E-04	4.00E-02	2E-02	1E-02	6E-04	2E-04	3E-02	50.9%	46.6%	1.9%	0.6%
Arsenic	15	3.1	0.52	1.7	13	4.19E-02	1.27E-01	1.69E-01	1.38E-02	8.99E-05	1.82E-01	3E-03	1E-02	1E-03	7E-06	1E-02	23.0%	69.4%	7.6%	0.0%
Chromium	74	2.2	1.6	1.5	5.0	1.30E-01	1.08E-01	2.38E-01	6.92E-02	6.43E-05	3.08E-01	3E-02	2E-02	1E-02	1E-05	6E-02	42.3%	35.1%	22.5%	0.0%
Lead	185	7.8	2.5	3.1	11	2.04E-01	2.33E-01	4.36E-01	1.74E-01	2.26E-04	6.11E-01	2E-02	2E-02	2E-02	2E-05	5E-02	33.3%	38.1%	28.5%	0.0%
Mercury	0.20	0.066	0.050	0.050	0.064	4.07E-03	3.73E-03	7.80E-03	1.85E-04	1.92E-06	7.99E-03	6E-02	6E-02	3E-03	3E-05	1E-01	51.0%	46.7%	2.3%	0.0%
Zinc	148	14	15	12	131	1.22E+00	9.19E-01	2.14E+00	1.39E-01	3.94E-04	2.28E+00	9E-03	7E-03	1E-03	3E-06	2E-02	53.6%	40.3%	6.1%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

NA = Not Applicable

TABLE 47. AVERAGE EXPOSURE CALCULATIONS FOR SHREW - STATION A6

Compound	C Sediment (mg/Kg)	C Water (ug/L)	C Prey (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water	
	Datasource:	A6	No SW	Earthworm A6	LOAEL											
X Inorganics	Antimony	12	NA	0.93	1.5	1.76E-01	1.45E-01	NA	3.21E-01	1E-01	1E-01	NA	2E-01	54.8%	45.2%	NA
	Arsenic	276	NA	2.0	1.5	3.82E-01	3.41E+00	NA	3.79E+00	3E-01	2E+00	NA	3E+00	10.1%	89.9%	NA
	Barium	130	NA	7.4	44	1.40E+00	1.61E+00	NA	3.01E+00	3E-02	4E-02	NA	7E-02	46.6%	53.4%	NA
	Chromium	417	NA	1.3	88	2.39E-01	5.15E+00	NA	5.39E+00	3E-03	6E-02	NA	6E-02	4.4%	95.6%	NA
	Copper	219	NA	3.5	43	6.62E-01	2.70E+00	NA	3.37E+00	2E-02	6E-02	NA	8E-02	19.7%	80.3%	NA
	Lead	1223	NA	40	176	7.46E+00	1.51E+01	NA	2.26E+01	4E-02	9E-02	NA	1E-01	33.1%	66.9%	NA
	Manganese	122	NA	1.9	624	3.53E-01	1.51E+00	NA	1.86E+00	6E-04	2E-03	NA	3E-03	19.0%	81.0%	NA
	Mercury	3.4	NA	0.093	0.35	1.74E-02	4.19E-02	NA	5.94E-02	5E-02	1E-01	NA	2E-01	29.4%	70.6%	NA
	Selenium	2.5	NA	0.29	0.73	5.51E-02	3.15E-02	NA	8.66E-02	8E-02	4E-02	NA	1E-01	63.6%	36.4%	NA
	Thallium	14	NA	1.1	1.6	2.09E-01	1.72E-01	NA	3.81E-01	1E-01	1E-01	NA	2E-01	54.8%	45.2%	NA
	Zinc	342	NA	92	440	1.73E+01	4.23E+00	NA	2.16E+01	4E-02	1E-02	NA	5E-02	80.4%	19.6%	NA

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 48. AVERAGE EXPOSURE CALCULATIONS FOR SHREW - STATION BE-1

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Prey (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water
Datasource:	BE-1	No SW	Earthworm BE-1	LOAEL											
Inorganics															
Antimony	1.0	NA	0.079	1.5	1.50E-02	1.24E-02	NA	2.73E-02	1E-02	8E-03	NA	2E-02	54.8%	45.2%	NA
Arsenic	21	NA	0.33	1.5	6.26E-02	2.63E-01	NA	3.26E-01	4E-02	2E-01	NA	2E-01	19.2%	80.8%	NA
Barium	53	NA	3.0	44	5.72E-01	6.56E-01	NA	1.23E+00	1E-02	2E-02	NA	3E-02	46.6%	53.4%	NA
Chromium	31	NA	1.5	88	2.84E-01	3.77E-01	NA	6.61E-01	3E-03	4E-03	NA	8E-03	43.0%	57.0%	NA
Copper	75	NA	2.6	43	4.99E-01	9.23E-01	NA	1.42E+00	1E-02	2E-02	NA	3E-02	35.1%	64.9%	NA
Lead	113	NA	5.8	176	1.09E+00	1.40E+00	NA	2.49E+00	6E-03	8E-03	NA	1E-02	43.9%	56.1%	NA
Manganese	168	NA	2.3	624	4.38E-01	2.07E+00	NA	2.51E+00	7E-04	3E-03	NA	4E-03	17.5%	82.5%	NA
Mercury	0.13	NA	0.063	0.35	1.18E-02	1.54E-03	NA	1.34E-02	3E-02	4E-03	NA	4E-02	88.4%	11.6%	NA
Selenium	2.6	NA	0.30	0.73	5.59E-02	3.21E-02	NA	8.80E-02	8E-02	4E-02	NA	1E-01	63.5%	36.5%	NA
Thallium	1.0	NA	0.079	1.6	1.50E-02	1.24E-02	NA	2.73E-02	9E-03	8E-03	NA	2E-02	54.8%	45.2%	NA
Zinc	415	NA	98	440	1.85E+01	5.12E+00	NA	2.36E+01	4E-02	1E-02	NA	5E-02	78.3%	21.7%	NA

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 49. AVERAGE EXPOSURE CALCULATIONS FOR SHREW - STATION BE-2

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Prey (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water
Datasource:	BE-2	No SW	Earthworm BE-2	LOAEL											
Inorganics															
X Antimony	2.5	NA	0.20	1.5	3.70E-02	3.06E-02	NA	6.76E-02	2E-02	2E-02	NA	5E-02	54.8%	45.2%	NA
Arsenic	219	NA	1.7	1.5	3.24E-01	2.70E+00	NA	3.03E+00	2E-01	2E+00	NA	2E+00	10.7%	89.3%	NA
Barium	53	NA	3.0	44	5.70E-01	6.53E-01	NA	1.22E+00	1E-02	2E-02	NA	3E-02	46.6%	53.4%	NA
Chromium	60	NA	1.4	88	2.72E-01	7.38E-01	NA	1.01E+00	3E-03	8E-03	NA	1E-02	26.9%	73.1%	NA
Copper	162	NA	3.2	43	6.12E-01	2.00E+00	NA	2.62E+00	1E-02	5E-02	NA	6E-02	23.4%	76.6%	NA
Lead	169	NA	8.0	176	1.51E+00	2.09E+00	NA	3.60E+00	9E-03	1E-02	NA	2E-02	42.0%	58.0%	NA
Manganese	368	NA	4.0	624	7.48E-01	4.54E+00	NA	5.29E+00	1E-03	7E-03	NA	8E-03	14.1%	85.9%	NA
Mercury	0.23	NA	0.067	0.35	1.27E-02	2.78E-03	NA	1.54E-02	4E-02	8E-03	NA	4E-02	82.0%	18.0%	NA
Selenium	2.7	NA	0.31	0.73	5.78E-02	3.37E-02	NA	9.15E-02	8E-02	5E-02	NA	1E-01	63.2%	36.8%	NA
Thallium	1.6	NA	0.13	1.6	2.43E-02	2.01E-02	NA	4.43E-02	1E-02	1E-02	NA	3E-02	54.8%	45.2%	NA
Zinc	1288	NA	142	440	2.68E+01	1.59E+01	NA	4.27E+01	6E-02	4E-02	NA	1E-01	62.8%	37.2%	NA

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 50. AVERAGE EXPOSURE CALCULATIONS FOR SHREW - STATION BE-4

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Prey (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water
Datasource:	BE-4	No SW	Earthworm BE-4	LOAEL											
Inorganics															
Antimony	1.5	NA	0.12	1.5	2.27E-02	1.87E-02	NA	4.14E-02	2E-02	1E-02	NA	3E-02	54.8%	45.2%	NA
Arsenic	61	NA	0.70	1.5	1.32E-01	7.56E-01	NA	8.88E-01	9E-02	5E-01	NA	6E-01	14.9%	85.1%	NA
Barium	30	NA	1.7	44	3.27E-01	3.75E-01	NA	7.01E-01	8E-03	9E-03	NA	2E-02	46.6%	53.4%	NA
Chromium	105	NA	1.4	88	2.62E-01	1.30E+00	NA	1.56E+00	3E-03	1E-02	NA	2E-02	16.8%	83.2%	NA
Copper	55	NA	2.4	43	4.60E-01	6.82E-01	NA	1.14E+00	1E-02	2E-02	NA	3E-02	40.3%	59.7%	NA
Lead	214	NA	9.7	176	1.83E+00	2.64E+00	NA	4.47E+00	1E-02	2E-02	NA	3E-02	40.9%	59.1%	NA
Manganese	364	NA	3.9	624	7.43E-01	4.49E+00	NA	5.23E+00	1E-03	7E-03	NA	8E-03	14.2%	85.8%	NA
Mercury	0.17	NA	0.065	0.35	1.22E-02	2.04E-03	NA	1.42E-02	3E-02	6E-03	NA	4E-02	85.7%	14.3%	NA
Selenium	4.1	NA	0.41	0.73	7.76E-02	5.02E-02	NA	1.28E-01	1E-01	7E-02	NA	2E-01	60.7%	39.3%	NA
Thallium	1.2	NA	0.092	1.6	1.74E-02	1.44E-02	NA	3.18E-02	1E-02	9E-03	NA	2E-02	54.8%	45.2%	NA
Zinc	343	NA	92	440	1.74E+01	4.24E+00	NA	2.16E+01	4E-02	1E-02	NA	5E-02	80.4%	19.6%	NA

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 51. AVERAGE EXPOSURE CALCULATIONS FOR SHREW - STATION HB02-2

Compound	C Sediment (mg/Kg)	C Water (ug/L)	C Prey (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water
Datasource:	HB02-2	HB02-2	Earthworm HB02-2	LOAEL											
Inorganics															
X Antimony	6.8	2.2	0.54	1.5	1.02E-01	8.40E-02	4.79E-04	1.86E-01	7E-02	6E-02	3E-04	1E-01	54.6%	45.1%	0.3%
X Arsenic	671	26	3.8	1.5	7.15E-01	8.29E+00	5.75E-03	9.01E+00	5E-01	6E+00	4E-03	6E+00	7.9%	92.0%	0.1%
Barium	110	33	6.3	44	1.19E+00	1.36E+00	7.23E-03	2.56E+00	3E-02	3E-02	2E-04	6E-02	46.4%	53.3%	0.3%
Chromium	256	4.5	1.3	88	2.47E-01	3.16E+00	9.94E-04	3.41E+00	3E-03	4E-02	1E-05	4E-02	7.2%	92.7%	0.0%
Copper	349	7.4	4.0	43	7.49E-01	4.31E+00	1.63E-03	5.06E+00	2E-02	1E-01	4E-05	1E-01	14.8%	85.2%	0.0%
Lead	245	2.8	11	176	2.04E+00	3.02E+00	6.23E-04	5.06E+00	1E-02	2E-02	4E-06	3E-02	40.2%	59.7%	0.0%
Manganese	948	493	7.6	624	1.43E+00	1.17E+01	1.08E-01	1.32E+01	2E-03	2E-02	2E-04	2E-02	10.8%	88.4%	0.8%
Mercury	0.65	0.051	0.076	0.35	1.43E-02	7.99E-03	1.13E-05	2.23E-02	4E-02	2E-02	3E-05	6E-02	64.2%	35.8%	0.1%
Selenium	6.4	1.5	0.58	0.73	1.09E-01	7.94E-02	3.35E-04	1.88E-01	1E-01	1E-01	5E-04	3E-01	57.6%	42.2%	0.2%
Thallium	10	1.7	0.80	1.6	1.51E-01	1.24E-01	3.81E-04	2.75E-01	9E-02	8E-02	2E-04	2E-01	54.7%	45.2%	0.1%
Zinc	2070	138	166	440	3.13E+01	2.56E+01	3.04E-02	5.69E+01	7E-02	6E-02	7E-05	1E-01	55.0%	44.9%	0.1%

NOTES:

HQ = Dose/DRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 52. AVERAGE EXPOSURE CALCULATIONS FOR SHREW - STATION HB03-3

Compound	C_Sediment (mg/Kg)	C_Water (ug/L)	C_Prey (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water
Inorganics															
X Antimony	5.2	2.2	0.41	1.5	7.70E-02	6.36E-02	4.79E-04	1.41E-01	5E-02	4E-02	3E-04	9E-02	54.6%	45.1%	0.3%
X Arsenic	231	26	1.8	1.5	3.37E-01	2.85E+00	5.75E-03	3.20E+00	2E-01	2E+00	4E-03	2E+00	10.5%	89.3%	0.2%
Barium	89	33	5.1	44	9.63E-01	1.10E+00	7.23E-03	2.07E+00	2E-02	3E-02	2E-04	5E-02	46.4%	53.2%	0.3%
Chromium	155	4.5	1.4	88	2.55E-01	1.91E+00	9.94E-04	2.17E+00	3E-03	2E-02	1E-05	2E-02	11.8%	88.2%	0.0%
Copper	253	7.4	3.7	43	6.88E-01	3.12E+00	1.63E-03	3.81E+00	2E-02	7E-02	4E-05	9E-02	18.1%	81.9%	0.0%
Lead	177	2.8	8.3	176	1.57E+00	2.19E+00	6.23E-04	3.76E+00	9E-03	1E-02	4E-06	2E-02	41.7%	58.2%	0.0%
Manganese	755	493	6.5	624	1.22E+00	9.33E+00	1.08E-01	1.07E+01	2E-03	1E-02	2E-04	2E-02	11.5%	87.5%	1.0%
Mercury	0.59	0.051	0.075	0.35	1.42E-02	7.29E-03	1.13E-05	2.15E-02	4E-02	2E-02	3E-05	6E-02	66.0%	33.9%	0.1%
Selenium	3.5	1.5	0.37	0.73	6.88E-02	4.26E-02	3.35E-04	1.12E-01	9E-02	6E-02	5E-04	2E-01	61.6%	38.1%	0.3%
Thallium	2.7	1.7	0.21	1.6	3.96E-02	3.27E-02	3.81E-04	7.27E-02	2E-02	2E-02	2E-04	4E-02	54.5%	45.0%	0.5%
Zinc	1207	138	139	440	2.62E+01	1.49E+01	3.04E-02	4.12E+01	6E-02	3E-02	7E-05	9E-02	63.7%	36.2%	0.1%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 53. AVERAGE EXPOSURE CALCULATIONS FOR SHREW - STATION HB04

Compound	C Sediment (mg/Kg)	C Water (ug/L)	C Prey (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water
Datasource:	HB04	HB04	Earthworm HB04	LOAEL											
Inorganics															
Antimony	0.67	2.2	0.053	1.5	9.99E-03	8.25E-03	4.79E-04	1.87E-02	7E-03	6E-03	3E-04	1E-02	53.4%	44.1%	2.6%
Arsenic	22	26	0.34	1.5	6.45E-02	2.75E-01	5.75E-03	3.45E-01	4E-02	2E-01	4E-03	2E-01	18.7%	79.6%	1.7%
Barium	13	33	0.72	44	1.35E-01	1.55E-01	7.23E-03	2.97E-01	3E-03	4E-03	2E-04	7E-03	45.4%	52.1%	2.4%
Chromium	25	4.5	1.5	88	2.88E-01	3.14E-01	9.94E-04	6.03E-01	3E-03	4E-03	1E-05	7E-03	47.8%	52.1%	0.2%
Copper	28	7.4	2.0	43	3.86E-01	3.50E-01	1.63E-03	7.38E-01	9E-03	8E-03	4E-05	2E-02	52.3%	47.5%	0.2%
Lead	20	2.8	1.4	176	2.72E-01	2.50E-01	6.23E-04	5.22E-01	2E-03	1E-03	4E-06	3E-03	52.1%	47.8%	0.1%
Manganese	76	493	1.4	624	2.55E-01	9.34E-01	1.08E-01	1.30E+00	4E-04	1E-03	2E-04	2E-03	19.6%	72.0%	8.4%
Mercury	0.16	0.051	0.064	0.35	1.21E-02	1.95E-03	1.13E-05	1.41E-02	3E-02	6E-03	3E-05	4E-02	86.1%	13.8%	0.1%
Selenium	0.54	1.5	0.093	0.73	1.76E-02	6.63E-03	3.35E-04	2.46E-02	2E-02	9E-03	5E-04	3E-02	71.6%	27.0%	1.4%
Thallium	0.58	1.7	0.046	1.6	8.61E-03	7.11E-03	3.81E-04	1.61E-02	5E-03	4E-03	2E-04	1E-02	53.5%	44.2%	2.4%
Zinc	53	138	50	440	9.42E+00	6.57E-01	3.04E-02	1.01E+01	2E-02	1E-03	7E-05	2E-02	93.2%	6.5%	0.3%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1

TABLE 54. AVERAGE EXPOSURE CALCULATIONS FOR SHREW - REFERENCE

Compound	C Sediment (mg/Kg)	C Water (ug/L)	C Prey (mg/Kg)	TRV mg/Kg day	DOSE prey (mg/Kg BW day)	DOSE soil/ sediment (mg/Kg BW day)	DOSE water (mg/Kg BW day)	Total Dose (mg/Kg BW day)	HQ prey	HQ soil/ sediment	HQ water	TOTAL HQ	% HQ prey	% HQ soil/ sediment	% HQ water
Inorganics	Datasource:	Ref Wetland	Ref Wetland	Earthworm Ref	LOAEL										
Inorganics															
Antimony	0.75	0.55	0.060	1.5	1.12E-02	9.28E-03	1.21E-04	2.06E-02	8E-03	6E-03	8E-05	1E-02	54.4%	45.0%	0.6%
Arsenic	21	3.2	0.32	1.5	6.10E-02	2.54E-01	7.04E-04	3.16E-01	4E-02	2E-01	5E-04	2E-01	19.3%	80.4%	0.2%
Barium	48	45	2.7	44	5.15E-01	5.91E-01	9.92E-03	1.12E+00	1E-02	1E-02	2E-04	3E-02	46.2%	53.0%	0.9%
Chromium	129	0.88	1.4	88	2.58E-01	1.59E+00	1.94E-04	1.85E+00	3E-03	2E-02	2E-06	2E-02	13.9%	86.1%	0.0%
Copper	57	3.9	2.5	43	4.64E-01	7.02E-01	8.58E-04	1.17E+00	1E-02	2E-02	2E-05	3E-02	39.8%	60.2%	0.1%
Lead	332	6.3	14	176	2.60E+00	4.10E+00	1.39E-03	6.70E+00	1E-02	2E-02	8E-06	4E-02	38.8%	61.1%	0.0%
Manganese	133	520	2.0	624	3.75E-01	1.65E+00	1.14E-01	2.14E+00	6E-04	3E-03	2E-04	3E-03	17.5%	77.1%	5.4%
Mercury	0.28	0.13	0.069	0.35	1.30E-02	3.45E-03	2.86E-05	1.65E-02	4E-02	1E-02	8E-05	5E-02	78.9%	20.9%	0.2%
Selenium	0.76	0.95	0.12	0.73	2.26E-02	9.34E-03	2.09E-04	3.22E-02	3E-02	1E-02	3E-04	4E-02	70.3%	29.0%	0.6%
Thallium	0.47	0.75	0.037	1.6	6.95E-03	5.74E-03	1.65E-04	1.29E-02	4E-03	4E-03	1E-04	8E-03	54.1%	44.7%	1.3%
Zinc	155	16	71	440	1.34E+01	1.91E+00	3.54E-03	1.53E+01	3E-02	4E-03	8E-06	3E-02	87.5%	12.5%	0.0%

NOTES:

HQ = Dose/TRV

An "X" in the left margin indicates that the total HQ for the compound exceeds 1